Want of Progress in Rural Taste.

TO the men or women brought up in cities, an apple is simply an apple; they have no other name for it, and scarcely appreciate, if they distinguish its good or bad qualities. To the same individuals one tree is much like another; shade and grass are of the same quality, provided they are shade and grass.

So it is in all matters; true education to the masses is denied. To those who are only familiar with gardens, and trees, and flowers, and grass, a star is a star; we have about as much relish, perhaps, for the pleasures of the astronomer, as the dweller of paved streets has for *our* favorite studies. These considerations should teach us humility; because we know a little more than our visitors, there should be no one who has lived long enough to learn *one* thing well, but would acknowledge his ignorance.

The first step in rural adornment, we heard a lady remark, was to plant a hop-vine or a gourd-seed; the progress to greater enjoyments is thus begun, but how many in our great country live their whole lives without the true enjoyment which Nature provides. We dined once with a wealthy individual, who was his own architect and designer, but who did not know the name, the species even, of the fine tree under whose shadow he had built his costly mansion. The planting of a hop-vine was to him an unknown problem. His gardener had all the enjoyment of the employer's wealth, in this line at least.

Schools should make a beginning in this matter; they do attempt to instruct the tyro in astronomy and botany, but where is the elementary book on horticulture, or has any one ever known half a dozen teachers that have passed an examination at the High School, and who were going to devote a life to teaching others, that could give the name of the most common plants and trees which surround every rambler in the woods?

The next step to planting a hop-vine is the acquisition of a knowledge of the fact that vines yield shade; a grape-vine follows, and delicious fruit rewards the planter. Would that all the desolate looking farm-houses we have seen in the course of many thousand miles of travel the past season, had even the luxury of a hop-vine! We could wish that, in many places, a single tree had been planted coevally with the erection of the house, or that some trees that did once exist had been left to increase. It is a sorrowful fact, that in a very large extent of this great Union, the very beginning of taste is not seen. The beautiful garden, or even the single ornamental object, is the exception and not the rule, if we take a

survey of the entire United States, and include the out-of-the-way roadsides, the mountain homes, and the whole interior. We have had no horticultural schoolmaster; taste has been omitted in the schedule of the school. Look at the result, and regret that it is so to continue for generations to come.

But, says the possessor of rural taste, a love of gardens and of planting is rapidly progressing. It is true they are increasing, but observation will show that they do not increase in the ratio of the population. A love of profit is increasing; money is the one thing that the masses worship. There formerly was respect for station, for age—is there any now? Will any one say this is taught any more than respect for a kind of learning which is not to produce a moneyed result?

How can we change this want, and bring up the mind of the country to a love of nature? We answer, by teaching a knowledge of the common things around us, and doing this in schools. "How to observe" is a thing rarely taught. "A farmer in repairing his fences will sometimes notice in splitting a decayed rail or stake, holes excavated therein and filled with young spiders, commonly of bright, beautiful colors, which lie still and quiet, with only a slight quivering of their limbs, and is puzzled to know why, when thus broken in upon, they do not awake from their lethargy and run away, little suspecting the manner and purpose of their being accumulated there. They have been stung by the parent bee or wasp just sufficiently to stupefy her victim without killing it, and will remain so till required for the food of the young not yet perhaps born. And a thousand similar interesting and curious phenomena are passing under the farmer's and gardener's eyes daily, as he pursues his labors—phenomena which, if

> In nature's infinite book of secrecy
> A little he can read,

aid in rendering his vocation beyond all comparison the most pleasant of any pursuit known to man."

Though the mission of our age may be to conquer the desert, we can see no reason why whole generations should pass away without those enjoyments which contribute to the softening of man's nature. The prairie annually springs up with beautiful flowers, and even fruit like the wild strawberry is said to redden the hoof of the traveller's horse as he takes his solitary journey. Why should we not incite Nature round our dwellings to perform the duties imposed by the Creator, and taste, amid the bitter cups too often offered to our lips, a little of the sweets, which are all but spontaneous, when we have learned to know their value and read them aright.

READING PEAR.*

Size, rather large, $3\frac{1}{4}$ inches long by $2\frac{3}{8}$ broad; *form*, pyriform, tapering to the crown; *skin*, greenish-yellow with numerous dots; *stem*, $\frac{7}{8}$ of an inch long by $\frac{1}{16}$ thick, somewhat fleshy at its insertion; *cavity*, none; *calyx*, open, segments erect, set in a narrow, very superficial basin; *cone*, medium; *seed*, dark-brown, long, acuminate, $\frac{1}{2}$ inch long, $\frac{1}{4}$ broad, $\frac{1}{7}$ thick, many abortive; *flesh*, greenish-white, somewhat granular, juice abundant; *flavor*, sprightly, vinous; *quality*, "good;" *maturity*, January to March, even to May.

Wood, young shoots slender, yellowish-olive; old wood, gray-olive.

THE SEED BUSINESS OF THE WEST.

BY WILLIAM STOMS, CINCINNATI, OHIO.

THE great West has become a vast empire within itself, and among the varied items that go to make up its commerce, that of the "Seed Business" is deserving of notice. And yet, when we turn to the pages exhibiting our statistics of trade, how deficient is everything on this important head. For this omission, there *was* excuse, in the days of big wagons and four-horse teams, but in these times, when our receipts are mostly by railroads, canals, and rivers, the apology is fallacious and inexcusable.

The great West, from a position absolutely beneath the dignity of statistical research in the "Seed Business," say twenty years ago, has advanced in the commercial scale, to operations, amounting annually to over two millions of dollars!

Our rapid growth and prosperity ofttimes quite make us forget our former selves, and hence I propose briefly to notice the things and men that have gone before, and also the present, pertaining to the "Seed Business" of the West.

There are many readers of the *Horticulturist*, no doubt, both east and west, who still remember the name of Mr. *Parsons Gorham*, who kept a small grocery store on the corner of Lower Market and Sycamore Streets, Cincinnati, and whose death occurred some eighteen years since. Some will doubtless recollect in this city, when that gentleman was almost the only person of whom a little clover and timothy-seed could be purchased after looking the town over. From the year 1827 to that of 1831, Mr. Gorham may be considered the pioneer in the Grass-Seed business. The amount of stock in trade, that is, of grass-seeds, at any one time, during Mr. Gorham's engagement in business, was, perhaps, fifty bushels!

* See Frontispiece.

Since that day, I have known, in the different varieties of grass-seeds, twenty thousand bushels to be the stock of one single house, besides a heavy distribution among numerous commission houses all over the city. Such is the contrast in twenty-five years! In those days the Kentucky farmer would sow his bushel of clover-seed, costing five dollars. Now he often sows fifty bushels, costing two hundred and fifty dollars. For the three years preceding that of 1831, from one to two thousand dollars was about the annual investment in grass-seeds, in Cincinnati. For the last three years to 1855 inclusive, as near as can be estimated, the annual investments are over half a million of dollars! The contrast is striking, but true.

In January, 1831, a new era dawned upon the "seed business of the west." Mr. S. C. Parkhurst, a clerk in the Seed and Agricultural Establishment of John B. Russell, Boston, without the prestige of a name or fortune, with a pocket more full of letters than money, entered the "Queen City," and essayed at once to open a seed store, in all its various branches, on this same Lower Market Street, and upon the same block with Mr. Parsons Gorham! Mr. Parkhurst originally contemplated only a moderate business in garden-seeds, &c. But the field looked inviting, and, in true Yankee style, he commenced the issue of handbills, containing upon them the emblems of agriculture, such as the "Plough, the Shovel, and the Hoe." These were assiduously distributed among the market people. The whole country round about soon became acquainted with the fact, that there was a man in town, ready to buy and sell all the grass-seeds saved in this region. Besides, was also prepared to supply the same with garden-seeds and various kinds of implements. The New Haven courage of Mr. Gorham had to give way to the Boston enterprise of Mr. Parkhurst. In short, Mr. Gorham fell back dismayed—and for ten years Mr. Parkhurst had the entire field, and ran the race alone. In 1832, Mr. Parkhurst's sale of clover and timothy-seeds was about 600 bushels. The graduating scale to 1841 we omit; but this year (1841) his sales amounted to 6,000 bushels.

At this period also, he had become a man of wealth, but his health declining he sold out the establishment to a couple of young men named Wooley and Dalrymple. His mantle did not fall on the right shoulders, for their career was brief. They were clever men—but, from a want of knowledge in the business, their failure was inevitable. After eighteen months' possession, they relinquished again to Mr. Parkhurst.

In the interim, John F. Dair & Co., successors to Mr. Gorham, commenced dealing in grass-seeds quite extensively, in connection with the grocery business. The two houses were only half a block apart, and prosecuted operations on a grand scale. Competition soon sharpened up to the highest pitch. The strife was warm and exciting—but lasted little over a year, when Mr. Parkhurst concluded that profits had narrowed down rather close for him; in 1845, he made another sale to Ely & Campbell, and took leave of the "seed business," perhaps forever. His fortune had become ample, and it was not necessary that he should

attend to details any longer. Still, he is not idle, which I will presently show. When Mr. Parkhurst left Boston, his circumstances were circumscribed to very small means, but his employer, J. B. Russell, was rich. Mr. Parkhurst came out west, and Mr. Russell entered upon the publishing business, as Russell & Odiorne, in Boston, after making a handsome fortune in the seed business. Since then, in the capricious evolutions of fortune's wheel, Mr. Parkhurst has drawn the prizes, and Mr. Russell the blanks. One went down, the other up. The latter gentleman came out west in 1844, in fortune quite broken down—and has, for many years since, been an *attaché* of the Gazette office in this city, in which situation he has been subject to a good deal of intellectual drudgery. The former is a dealer in stocks "*on the Rialto*," a director in two or three railroads, and one or two banks. Both adhere to the advice of Ulysses to Achilles. For, with both these gentlemen—

> "——— *to have done*, is to hang
> Quite out of fashion, like a rusty mail,
> In monumental mockery."

While it is breathing time of day, neither of them intends to die, or rust out.

Many persons of Mr. Russell's reverses of fortune would have put on the habiliments of heavy-laden care, or drowned their sorrows in dissipation. Not so with him. There always appeared to be a bountiful supply of sunshine about the heart that never failed to show itself in a genial glow, through his ever-beaming and benignant countenance. And of all the vices that ofttimes beset the path of both the fortunate and unfortunate, Mr. Russell has happily steered clear! But please excuse the digression, Mr. Editor, and you, Messieurs Parkhurst and Russell, excuse the too free use that I may have made of your names. I wished to trace the picture, for such is life!

The great bulk of receipts and sales of grass-seeds for Western consumption and Eastern export, are made at Cincinnati, Louisville, St. Louis, Chicago, Lafayette, &c. Of the Southern States, Kentucky, Tennessee, Virginia, and Maryland, are the principal consumers of clover-seed, for the fertilization of hard worked lands in hemp, tobacco, and cotton-growing districts. Of the Western States, Ohio, Indiana, Illinois, and Iowa are now the main producers of timothy-seed. Up to 1850, Cincinnati supplied nearly the entire West and Southwest with their grass-seeds, grown altogether in Ohio. Since that period, Illinois and Iowa have produced at least half the timothy-seed that has been consumed in this country. The productions of those States have annually increased in this article, and the time is not far distant when nearly all the timothy-seed saved in this region will be on the Western prairies. The surplus finds its way to New York or Eastern markets from, or through Chicago and Cincinnati. Of clover-seed it is quite different; nine-tenths of Western growth is saved in Ohio and Indiana; Missouri, Iowa, Wisconsin, and Illinois consuming more than they produce. As an item in this last-named commodity, Cincinnati has never ceased to be the great mart, and must continue to be for a long time to come.

A few years since, the sight of an agricultural implement here was a rarity—and the sales of such articles as straw-cutters, patent churns, horse-rakes, horse-powers and threshers, mowing and reaping-machines, &c., were a meagre nothing. Now, it is not an uncommon thing to see a broad acre of ground, on our wharf, or at some of our depots, covered with them. Manufactures have sprung up all around us, and the whole country teems with implements. In Cincinnati there are four houses devoted entirely to the sale of grass-seeds, garden-seeds, and agricultural implements.

In Louisville, about the first attempt to open up a regular seed business was in 1844, by our very enterprising friend, A. G. Munn. About $20,000 worth of seeds and agricultural tools were as much as could be sold that year. For the last three years his average sales are $100,000 per annum. There are now three large establishments for the sale of seeds and implements, and one factory, employing forty hands, and turning out a vast quantity of work every week. A safe estimate of the amounts sold annually, by all, would reach $350,000, exclusive of engine work, wagons, &c., or machinery for plantations.

In St. Louis, the revolution has been more complete than elsewhere—but want of space will prevent our giving the fact any notice of a statistical nature. Well do I remember when a few barrels of seed and a few implements served for the year's supply. Now, St. Louis sells more implements than any city west of the Alleghany Mountains. And soon, Chicago, perhaps, may be pressing hard upon her heels in the great strife of emulation. It is hard to predict where we shall land, for everything, since the introduction of railroads and telegraphs, seems to be transitory and fleeting. A city or town rises and falls, as it were, almost in a day. Trade from a certain source, which may have been the main prop and support of quite a commercial metropolis, passes off like dew under the potent influence of improvements. For the past three years, Cincinnati has been made to stagger under the influence of these diversions, and whether, when all things are completed, she is to be straightened *up*, or straightened *out*, time alone can determine. The shifting scenes of trade, in consequence of railroad and other public improvements, is not so visible anywhere else as in the West. Trade is withdrawn from one place and attracted to another, with so much mysterious facility as not to be realized until the actual facts are staring us in the face. It is but a few years since, when the eye of prophecy saw the great destiny of New Orleans. As a commercial emporium, it was to have no rival on this continent. Already it had become the immediate outlet and inlet in *transitu* of one of the grandest trades in the world. Nobody thought, a few years since, of shipping to, or of receiving goods from New York, Philadelphia, Boston, Baltimore, &c., by any other route than by the way of New Orleans.

Now, how is the mighty fallen! Railroads have so changed the scene that New Orleans has become almost an obsolete phase in many commercial atmospheres!

CULTIVATION OF THE PEAR-TREE.

BY DR. J. M. WARD, NEWARK, N. J.

If one of your late correspondents had good reason for thinking enough had been written on the subject of *planting* pears, it would become me to shrink from a compliance with the requests that are made to embody my observations on the subject, their treatment, the best varieties, and the adaptation of the quince or pear stocks to our varying climate. I claim nothing more for my observations than the experience of a ten years' residence on a fruit farm, with a pear orchard of a thousand trees, embracing one hundred varieties—objects of special interest to me.

In the science of pear culture in this country, the rubbish is just cleared away, and the foundations firmly laid, while the noble edifice to be erected on its walls is to be the work of the laborers now in the field of observation, and those who can bring contributions of experience, with one item of truth after another, till, in time, an edifice will be erected of such towering height and importance, as no other country than ours with its brilliant skies and clear atmosphere, can witness.

My observations will tend to contrast the comparative success of experiments with dwarf trees on the quince and those on their native stocks, and may be regarded by some as disparaging to the former. The glowing picture of Mr. Rivers' orchard of dwarf trees, drawn by the lamented Downing, was not without its influence in leading me to regard that as the mode of culture, which, while it marked the progress of the age in horticulture, was destined to supersede in a great measure, the growing of pears on their own stocks.

Viewing the subject through such a medium, it is no marvel! I embarked extensively in the growing of pears on the quince. With some varieties I have been eminently successful. The crop during the past season has not only been gratifying to my pride as an orchardist, but has proved eminently remunerative; indeed, the facts will warrant the remark, no crop grown upon the farm has paid so well, in view of the labor bestowed, as a crop of Duchesse D'Angouleme, on the quince. Both the largest of this variety, and of the Bartlett, have been upon the quince. At one time there was counted upon the mantle, in the fruit-room, twenty-five that weighed a pound and upwards, each—specimens, it is true, that had been selected from their fellows on account of their size.

The sight of a hundred trees, closely planted in rows, about twenty in a row—each tree resembling its fellow in size and form, and each sustaining as much of a crop as it could prudently be trusted with; the eye here and there lighting upon a specimen with its blushing cheek turned towards the sun, and the whole, when gathered, yielding over twenty bushels—was an argument in favor of dwarf trees, the force of which the most incredulous could not well withstand. *But*, turning from it to the Onondaga, and contrasting the thrifty, vigorous growth of that

excellent variety on its own stock, its boughs loaded with all the fruit it could comfortably bear, with not a few sickly starveling specimens on the quince, with only here and there a solitary pear, and a very different opinion might be formed of the success of the pear on the quince.

My trees on both pear and quince were planted at the same time, received equal care in planting, stand upon the same plat of ground, and occupy alternate rows. The space between the trees has enjoyed as equal culture as possible. As regards their annual pruning, though not as rigidly performed, especially in the earlier years as I now could wish, and, with my present views I would now give them, still the eye of the amateur will not detect any great departure from the most approved method, or if he recognizes early errors, will perceive they have been measurably remedied in later years. I am satisfied that *no one*, during the earlier years of his experience, ever prunes with a sufficiently rigid hand; this is a faculty acquired only by long years of experience. Well do I remember turning my back upon an experienced cultivator while he was giving me my first practical lessons; the conviction was overwhelming that there was a needless, profligate waste of those fondly watched towering shoots. Notwithstanding all the instructions that have been given, and the necessity of their being observed if we would have good fruit, I venture the remark that it is the last advice that is heeded by the inexperienced, who forget that the wood and fruit force are antagonistic principles.

Experience has taught me that my best crops have been obtained where the system of pruning was so close as to leave but three or four buds of the previous summer's growth. The past season, an entire row of dwarf trees showed a second crop of blossoms, when the fruit set was about the size of a walnut. Such a phenomenon evidently obtains when nature feels herself thwarted in having suffered the loss of a large proportion of the fruit-buds from the knife of the pruner; the crop that she has started and is carrying forward to maturity being inadequate to enable nature to expend upon it her accumulated fruit force. The same thing may be observed where an accident has befallen the tree in the loss of some of its main branches, or a violent storm has robbed it of a greater part of its crop of fruit.

As this occurs in my grounds to the prolific varieties only, and those on the quince, it suggests the thought whether the knife is not too vigorously used, and whether it might not be a better practice to thin the crop when half advanced, when we can pluck the illy-formed and stung fruit at a time so late as to forbid nature expending her energies at the expense of the already well-formed and half-grown fruit.

Your western readers will understand our difficulties when I contrast their fertile soil with my own. The plat of ground selected for my pear orchard is at the base of a mound known to be occupied in 1666, so that it is literally true that for nearly two hundred years the land has been yielding up its inorganic elements; and thus it is with most of the soil devoted to the pear on the whole Atlantic

slope. But though the labor demanded in this branch of industry is greater, the question is a pertinent one, Whether that labor does not have its reward in richer and more highly flavored fruit than the West can grow. Some facts that have come to my knowledge, though few, seem to me to look in that direction.

My farm was literally and emphatically a worn-out one, but having a rolling surface, with a soil of gravelly loam, the decomposed sandstone of New Jersey, and a like subsoil with such a proportion of shale as to give it the requisite porosity for producing rich fruit, I commenced deepening the soil by the use of the subsoil plough, and manuring with common barnyard manure. This accomplished, and one crop taken from the field, the holes were dug of sufficient depth and width, that, when properly filled, the tree would stand about as deep in the soil as it stood in the nursery row. No one thing have I been more anxious to secure than sufficient depth of hole, *filling it a foot or more with sods*, and spreading over these pulverized surface soil to give an even surface; spreading the roots on this, adjusting even the little rootlets, so that they will readily come in contact with the nutriment given them, always taking the precaution to have those rootlets covered lightly with fine pulverized loam, rather than the stimulating compost appropriate for the filling up.

And on the composition of this for our greedy soils depends very much of our future success. No composition has given me such satisfaction in its lasting influence on vegetation as one of muck pulverized by the frosts of winter, mixed in the spring with lime or ashes, bone-dust, and charcoal charged with urine or fresh poudrette. When all of these, or such of them as one can command, thoroughly mixed through the summer and fall with barnyard or stable-manure, are thoroughly commingled with equal quantities of good loam, you have a manure rich enough in inorganic elements, if not to merit a premium, to give you fruit that will universally be acknowledged to be deserving of it.

Properly filling the hole with this and the surface soil, the work is done, except keeping the ground free from weeds in the summer, and the soil between the trees occasionally stirred and loosened, as demanded in the cultivation of a potato crop. My favorite practice is to mulch with straw or refuse hay, believing that it serves to manure the soil independent of its decomposition, possibly by absorbing and retaining ammonia and other gases that play such an important part in the vegetative process.

The depth of hole which was diminished by the foot of sods to underlie the tree, will be *a life insurer* to the tree, during the severest drought. The mulch, however, will be a guarantee, if such be needed, that death from this cause will not overtake it.

(TO BE CONTINUED.)

[Dr. Ward is welcome to our pages. He has a right to be heard, having undertaken for pears (and other fruits) what Dr. Underhill has successfully carried out in grapes, the supply of a great want to the New Yorkers. He will open the

subject of the difference between the value of the dwarf and the standard pear-tree, which it is well to discuss, now that so many years have elapsed since the experiment was commenced. We shall be glad to receive the doctor's continuation.

With regard to manure for orchards of all kinds, it will probably be found that "street dirt" contains the elements necessary to success; where it can be procured without a long pull, it will be cheap.—ED.]

A DAY AT KEW GARDENS, LONDON.

No. II.

BY THE EDITOR.

WE must move on; fatigue it will not do yet to listen to; we shall probably never have such another opportunity. As yet we have scarcely begun to see and hear.

Sir William evidently enjoyed with a high zest any discoveries which led to the detection of imposture. Such is the *Revelenta* of the shops, advertised all over London, which is nothing but a flour or meal prepared from the seed of *lentils*, or beans, to which the fabricators give a strangely corrupted name; and in order to carry the deception further, the advertisements exhibit a tropical scene of lusty negroes cutting down palm-trees amid Hindoo temples, for the preparation of lentil-meal from a humble vetch! They use the seed of Ervum lens, and the good English women have been giving it as the most wholesome dish to their children, till it was found out and exposed.—Here is Shola, the very soft pithy wood of Æschynomene aspera, of which those Sincapore hats are made. Used for a variety of purposes, where softness and lightness are required; floats for fishing-nets, &c.—Divi divi; the pods are most powerful astringents and rich in tannin; 3,000 tons are annually imported; the plant is Cæsalpina coriaria.—The order Rosaceæ, Rose family, of which roses are the type, including a large proportion of our esculent fruits; you see the various products either in reality or wax models of great beauty. From the kernels of the West India cherry, Cerasus occidentalis, Noyeau is prepared.—There is Henna, leaves, powder, and fruit of Lawsonia inermis, used in the East for dyeing the finger nails.—Sir William smiles as he shows the piles of tobacco and bundles of cigars of all possible shapes and sizes, probably at the universal weakness of mankind; but he tells you that the English imports of all products of tobacco exceed 40,000,000 lbs. annually, and produce a revenue of twenty millions! of dollars.—Here is your American Poke-Weed, Phytolacca decandra, the root used in medicine, and the berries for staining wine, which is sent you of such good colors! from your own weed grown in

Europe for this purpose.—Here is Cassava bread; Tapioca; Castor oil; Croton oil, &c. &c., all going to show how much we are indebted to vegetables.—Nettles, worthless as they are proverbially considered, yield a useful fibre, and some are neither unwholesome nor unpleasant food.—Milk of the Cow-tree, used by the natives of Venezuela, and given to the children as we do cow's-milk.—Fruit and bark of the Upas tree, and concrete juice of the same; inhabiting the malarious regions of Java, this tree has a worse name than it deserves.—Jack; the gigantic fruit of Artocarpus integrifolia; the largest edible fruit that is brought to table; some have been known to weigh 80 lbs.; the odor is disagreeable, but the fruit good.—Those are shirts made out of the bark of two sorts of Tururi, one an Artocarpea, the other a Fig, from the Amazon.—All the products of the Willow, plaiting, baskets, &c. &c.—Refuse Tan, from oak bark; made into cakes for fuel in Britanny.—Galls of various kinds from oaks; among them the large Mecca or Bussorah galls, called also Apples of Sodom, Dead Sea Apples; used in the East for dyeing, and more esteemed than the common nutgalls which are occasioned by the puncture of the Cynips gallæ tinctoriæ on the Quercus infectoria. When on the trees, the Mecca galls formed by the Cynips insana on the same oak, are of a rich purple, and varnished over with a soft substance of the consistence of honey, shining with a most brilliant lustre in the sun, which makes them appear like a most delicious and tempting fruit. They are very astringent and scarcely bitter. The far-famed Mad-apples, Mala insana, or Apples of Sodom, Poma Sodomitia of Josephus and other writers; "the fruit which never comes to ripeness" of the Book of Wisdom,

"Which grew
Near to the bituminous lake where Sodom flamed,"

and which, though beautiful to the eye, yet crumbles at the touch to dust and bitter ashes; it was supposed by some to be the egg-plant of our gardens, by others to be a species of cotton tree, but by Lambert to be the galls here noticed.—You see there candles made from a tallow or oil from acorns in New Grenada (may they give *light* to Kinney and Walker).—Of the coniferæ we cannot enter into an enumeration; the magnificent collection of Pine-cones occupying a large table-cabinet are of great value to nurserymen and planters, who compare them with cones they receive from abroad, and thus ascertain their proper names. The specimens of the cones of Auracarias and Dammars of the southern hemisphere are particularly valuable. Nor can we enter upon the products of the order Palmaceæ, or Palm family; their several uses would require a volume to describe—

"The Indian nut alone
Is clothing, meat and trencher, drink and pan,
Boat, cable, sail and needle, all in one."

They yield timber, fibre of every variety, oil, wax, starch, sugar, daily food, mild and intoxicating drink; it is rather difficult to say what they do not yield; the collection is wonderful, and if not complete, additions are constantly received.—

The Screw Pine family, many of whose remarkable plants are natives of muddy shores of tropical rivers, have aerial roots, which descend like buttresses, and prevent their being washed away by the currents. The leaves, as may be here seen, are manufactured into ropes, hats, &c.—Here is a basket made from Typha elephantina, which is probably the "bulrush" of Scripture, of which the basket was made for the infant Moses, and such are still in common use in Eastern countries.—This room contains the Cerealia and their products; let us pass it for fear of detention! only looking at some flour buried by Captain Beechy in 1824 for the use of Sir John Franklin, which when dug up in 1849, proved perfectly sound.—You see there the peats, condensed without pressure, and these having the character of coal, jet, &c., are capable of being turned into inkstands and door-handles, &c.—You are horticulturally inclined and therefore *a trimmer;* in that case is contained samples of wood cut through, showing the effects of injudicious pruning, and the various injuries and decays consequent thereon. A most important study, indeed. Don't look at the wasps' nests and such matters, we must get to the plants; and the Director led us to another and even greater treat, our English lady still brisk and determined to see all. We soon discovered that she was alive to all that was said, and understood the rapid information so freely imparted; we must say she was "a good specimen," and above the average of English ladies for intelligence on these topics.

Before we proceed to the gardens and hothouses, it may be interesting to state the gradual increase of visitors since these gardens were daily thrown open to the use of the public. In 1841, the number admitted was 9,174; in 1845, 28,139; in 1850, 179,627, and in 1854, more than 400,000! The place is now the best of its kind in the world, and probably will so continue. The Crystal Palace at Sydenham may have drawn away some of its numerous visitors, but it must always remain, from its multiplicity of objects, the great school of Botany.

(TO BE CONTINUED.)

GARDEN WHEELBARROW.—THE WHIMSIE.

THIS barrow, although light and simple in its construction, is composed of eight different parts, which may be used as a whole or separately. We translate from the *Revue Horticole.*

These parts are: 1st, a tilting or self-unloading barrow (*à bascule*); 2d, a hand-barrow; 3d, a roller for settling the earth of platbanks and seedbeds; 4th, a plough for scraping walks; 5th, a rake; 6th, a watering-pot; 7th, a single ladder; 8th, a double ladder.

The garden barrow may be used for carting earth, sand, bundles of straw or

hay, fagots, etc.; it is intended for watering, settling, and raking walks, rolling the platbanks or seedbeds so as to level the earth; it can also serve in the gathering of fruits, the pruning of trees, and, lastly, in the building of pale-fence.

The roller which acts as the wheel of this barrow prevents its being so readily overturned as the ordinary one, and is much less fatiguing to the workman, inasmuch as it merely requires to be pushed or drawn, keeping itself in equilibrium. It possesses another advantage; namely, the roller makes no rents in the garden, but, on the contrary, settles and levels the walks and sod.

The barrow is arranged in such a manner that nine-tenths of the weight bears upon the roller, so that a loaded barrow can be easily managed by a child of twelve years of age. The barrow is readily unloaded, by simply tilting it.

By the removal of a single bolt, the upper portion, or body, is removed, and the handbarrow remains.

The plough, or scraper, serves as the foot of the handbarrow. This plough, of which the coulter has an oblique direction, is easily managed and admirably adapted to cutting roots; the rake which follows is of iron, and collects the large weeds, which can be thrown into the barrow.

The plough and rake can be readily removed; to effect this, it is only necessary to take out a bolt and two keys.

This part, as well as the body, being removed, there remains the handbarrow, which, when half opened, forms a double ladder, the separation of which is limited by a brass rod; if entirely opened, it presents a single ladder, solid and light, and of four or more mètres* in length.

The following description more clearly explains the details of this useful addition to the implements of the gardener. The figures are on a scale of 0.05 for 1 mètre:—

A. Roller which serves as the wheel of the barrow.
B. Axle of the roller.
C. The tilting body.
D. Axle of this body.
E. A line indicating the position of this body when it is tilted in order to unload it.
FF. Frame of the barrow, forming a handbarrow when the body is removed, and ladders when the plough is taken off.
G. Bolt connecting the two parts of the machine.
HH. Iron points for holding the ladders firmly in the ground.
I. Handles of the barrow.
J. The levelling plough (Fig. 3).

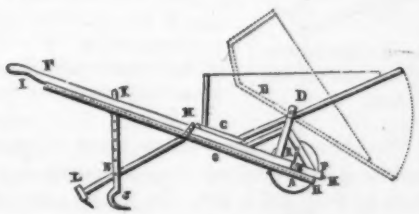


FIG. 1.—GENERAL ASPECT OF THE BARROW.

A mètre is equal to 1.093633 yard.—TRANS.

K. Mortises for fastening the plough by means of keys. These mortises are pierced with several holes so as to decrease or augment the length of the coulter of the plough.

L. Rake (Fig. 3).

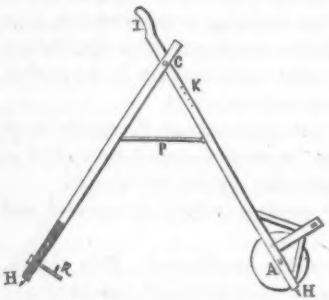


FIG. 2.—DOUBLE LADDER.

M. Bolt which fastens the rake.

N. Screw-bolts which connect the plough with the rake.

O. Watering-pot placed underneath the barrow, and which can be closed at pleasure by means of a valve.

R. Rods moving in the frame, and serving, by means of a key which traverses them, to fasten together the two parts of the frame which constitute the double ladder. These rods will likewise keep the ladder at a proper distance from the wall, so as not to injure the trees.

P. Rod which limits the separation of the double ladder. (For the other letters of this figure, see description of Fig. 1.)

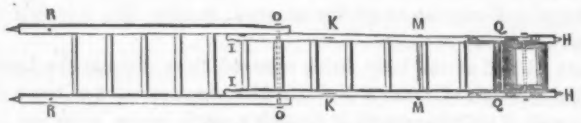


FIG. 3.—SINGLE LADDER.

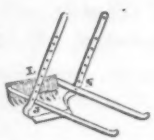


FIG. 4.—SIDE VIEW OF THE SCRAPER AND RAKE.

H. The handles which serve as a resting point for the ladder when open.

QQ. Iron plate which keeps the roller clear of dirt. When the single ladder is used the roller is beneath.

RR. Ends of the rods which protect the trees when the ladder is applied against a wall. (For the other letters of this figure, see description of Fig. 1.)

N J. Screw-bolts which fasten the scraper to the rake. (For the other letters of this figure, see Fig. 1.)

The above implement will be found of immense advantage to the owners of parks and large gardens. Its construction is not expensive, as it may readily be made for from $15 to $20. Its various component parts, if purchased separately, would cost from $30 to $40.

ROTTEE.

GROWTH OF WESTERN TOWNS.—The village of La Crosse, WIS., the terminus of the La Crosse and Milwaukie Railroad, was laid out only four years ago, and is now said to contain two thousand houses. It supports a newspaper, and enjoys the frequent visits of some thirty different steamboats.

ROOTS.

THE root is the organ through which food is conveyed from the earth into the plant, and is the part which is soonest developed, increasing in length by the addition of new matter at its point, much as an icicle by the constant superposition of layer over layer, with this difference, that the icicle is augmented by the addition of matter from without, while the root lengthens by the perpetual creation of new matter from within. Being furnished with the power of perpetually adding new living matter to their points, they are thus enabled to pierce the solid earth in which they grow, shifting their mouths in search of fresh pasturage; hence the expression, "You may feed your trees as well as your chickens." A Populus monilifera, Canadian poplar, has been known to send a root thirty feet horizontally, including its dip beneath a wall, and then to have passed into an old deep well to the depth of eighteen feet. A deciduous cypress-root, eleven feet long, passed nearly to that length without division, in search of water. Willows exhibit even greater desire to travel in search of nourishment.

It is not merely in length that the root increases, or else all roots would be mere threads; they also augment in diameter, simultaneously with the stem. Neither is it by an embryo alone that roots are formed. A plant once in a state of growth, has the power of producing roots from various parts, especially from leaves and stems. A Spanish chestnut, between ninety and one hundred years old, was cut down in 1849. With the exception of its foliage, which always had a yellowish sickly tinge, there was scarcely anything else that indicated decay. Its trunk seemed perfectly sound, with healthy annual shoots. No sooner had the workmen commenced cutting, than it was discovered that for ten feet high, as much as two-thirds of the bark round the trunk was dead and reduced to a mere shell. On removing this thin covering, the sap-wood was found to have become a mass of decayed vegetable matter, through which a complete network of roots passed to the ground, as represented in the cut, and extended

Fig. 1.

themselves for a considerable distance from the main stem; some of these roots were about the size of an ordinary walking-stick. Cases of remarkable roots are familiar to observers.

An Episcia bicolor happened to have its leaves injured by an accident, which cut the midrib and a portion of leaf on both sides of it; after a certain time, the wound healed, the part next the base of the leaf remaining the same thickness as before the injury, while the edge of the outer portion gradually thickened, and developed a small bud close to the midrib, Fig. 2, from which a number of minute fibrous roots issued, and eventually a stem and leaves, as represented in the sketch. As the plant increased, the old leaf gradually became exhausted, and perished altogether as soon as the young leaves gained the ascendency and deprived it of the scanty means that had previously supported it. Similar instances are familiar, not the least interesting of which is that of a broken celery-leaf, which sent out roots from the lowermost of its wounded edges.

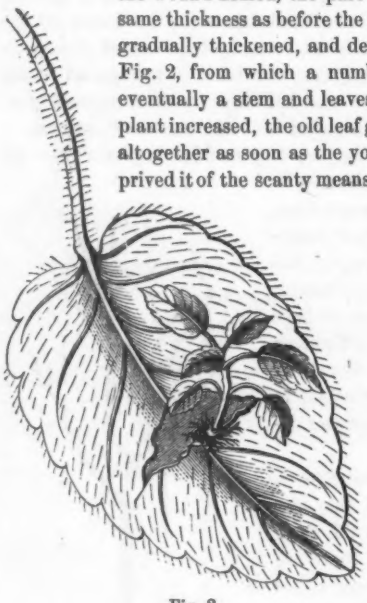


Fig. 2.

In general, roots have no buds, and are, therefore, incapable of multiplying the plant to which they belong. But it constantly occurs, in some species, that they have the power of forming what are called adventitious buds; and, in such cases, they may be employed for purposes of propagation. There is no rule by which the power of a plant to generate such buds can be judged of; experiment is, therefore, necessary, in all cases to determine the point.

Exceptions are found in the Moutan peony, in the plum-tree, or the Pyrus (Cydonia) japonica, which may be increased with great facility by small bits of the roots being inserted in a shady border, and covered with a hand-glass; but in none of them does the power reside in the same degree as in the Japan Anemone. If a root be taken after flowering, it will be found to resemble brown cord, divided into a great number of ramifications, as represented in the cut. Upon its surface will be perceived a multitude of white conical projections, sometimes growing singly, sometimes in clusters, and occasionally producing scales upon their sides. A magnified view of these bodies is shown in Fig. 3, *a*. They are young buds, every one of which, if cut from the parent, will grow and form a young plant in a few weeks, every fragment of the plant being productive.

It is certain that vitality is stronger in the roots than in any other part of a plant. Live roots have been found in land many years after the trunks to which

they belonged had been destroyed. Mr. Knight gives some curious particulars in his *Physiological Papers*, pp. 83, 325.

It has been confidently asserted that roots are the organs by which plants rid themselves of the secreted matter which is either superfluous or deleterious to them. Correct experiments, however, have shown that such results are only obtained when roots are lacerated, and that they have no greater power of excreting matter than other parts of a plant. The theory of root-excretions was sustained by Liebig, but it is now abandoned.—*Pof. Lindley.*

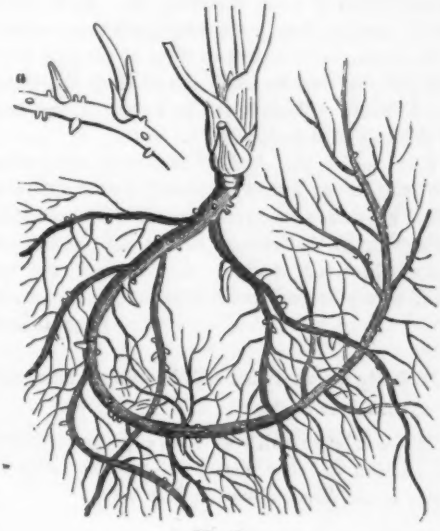


Fig. 3.

DOWNING'S FAMILIAR NOTES AND LETTERS.

No. II.

A PUBLICATION in two quarto volumes of our own, entitled *American Literary and Historical Curiosities*, had attracted Downing's attention, and he immediately commenced with considerable success the new pursuit of autograph collector; the next and the following letters contain playful allusions to this:—

HIGHLAND GARDEN, June 15, 1847.

MY DEAR FRIEND: I am greatly your debtor for the two fine volumes you have sent me. That on *Medical Botany** is very respectable. The *Antiquities* is quite a gem in its way, and has interested me a great deal—indeed, so much so that I have got about putting together an autograph collection of my own, as I find, on collecting the materials, that I have a very respectable stock to begin with.

Indeed, *I send you* in the true collector's style, some of my duplicates—embracing autograph letters of Jeremy Bentham, Major Cartwright, General Mina,

* Carson's *Medical Botany*, which was published in Philadelphia.—ED.

an autograph of Lady Morgan's, &c. As I know you are a collector, and probably have not these good things, put them under your wing.

In return, send me two or three of the best duplicates you can spare. I imagine you can send me easily one of Mary Howitt, and, possibly, of John Bartram and Franklin. Washington is, I suppose, too scarce to be had. Am I not full of the zeal of collectorship?

I will notice the *Medical Botany* in my next number—in which, by the way, you will see an article entitled "Arboricultural Gossip," by *J. Jay Smith*, that will, I am sure, amuse you—since I have made it from several of your late letters, taking that on Arboretums as the basis, and one or two facts that you told me verbally here last summer. It reads well, and to the point, and will raise the credit of my Journal and benefit the public. Long live the editors!

Yours in haste, but sincerely,

A. J. D.

P. S. By the way, what a little cramped autograph of my own is in your quarto!

To J. Jay Smith, Esq.

The next letter which we shall copy is particularly characteristic, and contains the allusion to being one of his "parish" with which we opened our editorial career in the *Horticulturist* in July last.

Highland Garden, Aug. 5, 1847.

My Dear Friend: I have been absent from home for some days, and now have the pleasure of sending you a bound copy of my *Horticulturist*. The "Hints to Young Architects," I told my publisher to send you some time ago, and presume it has reached you before this.

I was very much amused at your letter touching the autographs, which you first thought you would bestow on me, but, upon sober second thought, determined not. Never mind; I will bide my time. By and by, when you are looking over your collection you will, I am sure, see something that you will lay aside for me; upon which (without waiting for the second thought), pray send it off at once!

So you have undertaken a country place! Well, now you *are* one of my parish, and there is no escape for you; digging, and delving, and planting, and laying out, *ad infinitum*. Depend upon it, it is about the only rational sort of creation that poor humans can engage in, and provided you do it wisely (which few of us do, indeed), you cannot fail to increase your happiness by it. In the mean time, if any hints of my poor brain can help you, call them out I pray you.

Let me know in your next in what direction is your new home—whether near the Delaware, or the interior? I am curious about all.

The North River, which I chiefly confine my visits to this season, looks finely. There is beauty enough to satisfy a reasonable man.

Sincerely your friend,

A. J. DOWNING.

To J. Jay Smith, Esq.

HIGHLAND GARDEN. (Without date.)

MY DEAR FRIEND: I have a very special favor to ask of you, and that in some haste.

You remember paying a visit with me to ———, Esq. He is the best friend I have in the world; well proved, and is one of the most perfect gentlemen, and generous high-minded men living, one, indeed, of Nature's noblemen, as I may most safely say.

He is just about sailing for Europe, with all his family, for a two years' tour, and with *Parkomania* especially in his mind. There is no man of all my acquaintance so thoroughly prepared to see and enjoy the finest English places. Rare trees are his great hobby.

Now, *apropos* of all this, I have remembered the interesting accounts of Windsor Park that you gave me in detail, and which you saw to so much advantage through your friend, Mr. Jesse, who, if I remember rightly, is the Queen's Ranger. If you feel at liberty to give Mr. ——— a letter recommending him to Mr. Jesse's kind attentions, I know it would gratify him beyond anything that I could possibly do, and it will, I assure you, lay *me* under lasting obligation. Mr. ——— has a very *loyal* spirit, and I think Mr. Jesse will have great satisfaction in playing the Cicerone to so great an enjoyer of all that he has to show.

Now, as I know the reluctance of some persons to give letters, I beg you to act frankly about this, and do not hesitate to decline at once, if you do not see fit to give it. But I am inclined to hope, from your familiar intercourse with Mr. Jesse, that the thing may be accomplished.

You see how frankly I come to you in the hour of need.

Sincerely yours,

A. J. DOWNING.

To J. JAY SMITH, Esq.

HIGHLAND GARDEN, Dec. 29, 1847.

MY DEAR FRIEND: A happy new year to you! I suppose you are full of plans and projects of country life—for the imagination, I find, is more fertile in winter than in summer, and we fancy a thousand little plans, half of which we are never able to carry out.

I had a letter from a gentleman at the South lately, in which he desired to know where he could get trees of that very fine species "so graphically described" by J. J. S., of Philadelphia, in the *Horticulturist* ("arboricultural gossip"), the Virgilia lutea? Perhaps some time hence you will give me some more notes and measurements of your remarkable specimens.

I don't know whether the style of house you are building admits of grained wood-work—like oak or black walnut—but if it does, I can tell you of an invention that pleases me, and that will, by its cheapness and effect recommend itself to Americans. This is a liquid wood stain, invented by a man in London, whose address I have. You wash over wood-work made of common pine, and then varnish it, and it has the effect of *fine old oak;* that is to say, all the real grain of

the wood is preserved and shown, and the same tone of color is given that the fine woods have naturally. I have seen a small church lately where the woodwork (including timber, ceiling, &c.) is all done in this way, and the effect is admirable. The cost of the liquid for this church (seats 200) was twenty shillings!

I am busy with "Downing's New Cottages and Villas," with interiors, fountains, &c. Have you seen a copy of the colored edition of my Fruits, just published, the plates done in Paris? It is, I think, very handsome. The price, $15, prevents a poor author sending many gift copies! I received a letter from a gentleman in Germany near the Baltic last week, who has my work on Fruits—it has got as far as that—and he considers it so superior to all that he has seen that he wants to translate and publish it in German. It has been, on the whole, the most popular gardener's book ever written. I am now correcting for the eighth edition.

I want you to do me a favor. When I was in Philadelphia, I was so much pleased with a little Italian song which Mrs. —— sang, that I bought a copy in Chestnut Street, and now I want another for a friend. The name is "Benedetta te sul Madre," and cost "two levies." When it is convenient, if you will buy it and send it me by mail, consider the money invested at 100 per cent., and oblige,

Very cordially, yours,

A. J. DOWNING.

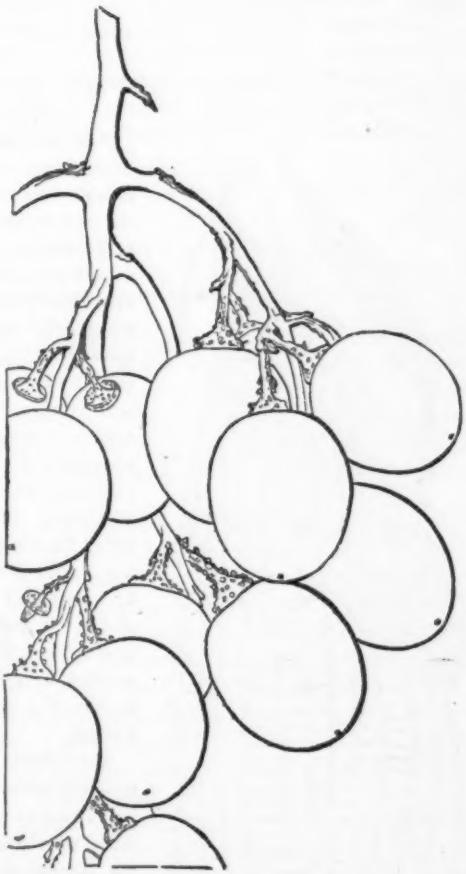
To J. Jay Smith, Esq.

THE STOCKWOOD GOLDEN HAMBRO' GRAPE.

SCARCELY a season passes in which we have not something new in the way of fruits; but it rarely happens that they possess anything more than novelty to recommend them. The mass of new fruits puts us in mind of that host of rhymesters, who, having only a dreamy vision of Parnassus, never reach it, yet, nevertheless, fancy themselves poets. But as it rarely happens that we have more than one good poet, or two at most, in a generation, so, also, if we obtain one or two really good, enduring new fruits in the same period, we may be thankful. Within the last twenty years we have had "Victoria," and many other sorts of Hambro', all of which made a great noise in their day; but they were soon forgotten, and men betook themselves to the old Black Hambro' again. The variety which we have this week chosen for our subject is one which is not likely to be so soon forgotten, but which, there can be no doubt, will be as enduring as its parents, the old Black Hambro' and the White Sweet-water.

The Stockwood Golden Hambro' was raised from seed by Mr. Bushby, the excellent gardener to S. Crawley, Esq., near Luton. It was not obtained by

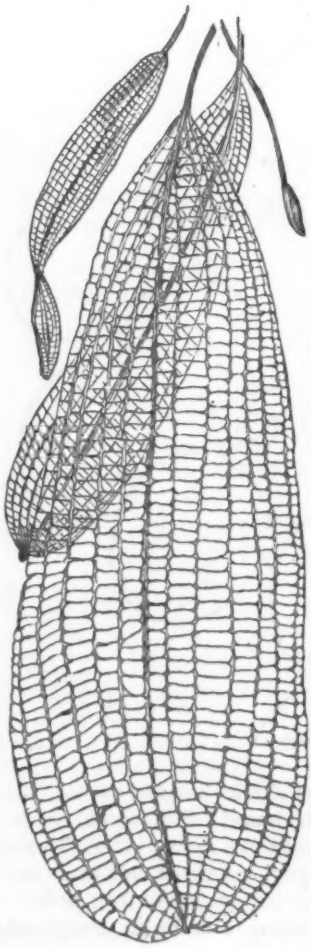
chance, as many of these things are, but was the result of a careful process of hybridization, which was pursued with the view of obtaining just such a result as has been arrived at. It was raised from the *Black Hambro'* impregnated with the pollen of the *White Sweet-water*. There was only one flower impregnated, and the operation was successful; a fine berry being produced, which contained five seeds, four of which vegetated. Two of the plants were thrown away; one was destroyed by accident; and the survivor is the variety which we are enabled now to introduce to our readers. The growth of the vine bears a stronger resemblance to the male parent than to the Hambro', being short-jointed in the wood; but the foliage is more similar to that of the Hambro', being large, five-lobed, and the veins and footstalks tinged with red. The bunches are large, loose, branching, and shouldered, varying from six to nine inches in length, and the footstalks are short and stout. The berries are large, and hang loosely on the bunches, an inch long, and seven-eighths of an inch wide, and of a uniform oval shape. The berry-stalks are rather long, stout, and considerably warted. Skin thin and tender, of a pale yellow color, but, when highly ripened, of a pale amber. Flesh delicate and melting, very juicy, and remarkably rich, sugary, and vinous, leaving on the palate a full and luscious flavor. Each berry contains from two to three seeds.



Our figure is taken from a bunch kindly forwarded to us by Mr. Busby, and

although our space would not admit of a full representation, still there is sufficient to show the character of this excellent new fruit, which is, without doubt, "the best of all the white Grapes except the Muscats."—*London Cottage Gardener.*

THE LATTICE PLANT.



THE new and curious aquatic plant from Madagascar, called the Lattice Plant (*Ouvirandra fenestralis*), must be placed among the most remarkable of our recent botanical acquisitions. Its existence had been for some time known to botanists through a few dried leaves sent from Madagascar by a traveller, who was unable to transmit living specimens of the curiosity he had discovered; and it was not until within the last few months that this desirable object could be attained, when several living plants were brought over to England from the above-mentioned country, by the Rev. Mr. Ellis, a missionary. This gentleman shortly transferred the whole stock to Messrs. Veitch, of the Exotic Nursery, King's-road, Chelsea, by whose kind permission the accompanying sketch was made from the specimens in their possession. The plants under their hands are thriving extremely well, and will be found worthy of a visit from the curious in these matters.

The interest of this plant lies in the extraordinary structure of the leaves, which, unlike those of any other known plant, are made up of the ribs and cross-veins only; the interstices, which in other leaves are filled up with cellular tissue, being here left almost entirely open, so as to give the leaf the appearance of a piece of curious net or lattice work, from which is derived its common name—the Lattice Plant.

That the beauty of this unique vegetable curiosity may be thoroughly appreciated, it

must be seen growing in its natural situation—submersed in water, with every motion of which the lace-like leaves take the most graceful, undulating curves. The plants at Chelsea Nursery are placed in broad glass pans, which allow the structure and movement of the leaves to be perfectly visible by the light transmitted through the sides. The temperature required is about 75 degrees.

As far as can be judged from so short an acquaintance with its habits, little difficulty is to be anticipated in the cultivation of this plant, which will probably be, ere long, as extensively distributed among the collections of this country as, from its great interest and beauty, it fully deserves to be.—*Illustrated News.*

THE RESIDENCE OF JOHN BARTRAM;*

NOW IN THE CITY OF PHILADELPHIA.

THE house, of which a picture is presented in the present number, may be said to be the cradle of American botany; from the proprietor emanated the plants and seeds which supplied the means and fostered the taste of what now constitutes half of the older ornamental planting of England. It was finished in the year 1770, and is still preserved with pious care by Colonel Eastwick, its present liberal proprietor, and forms the most interesting shrine for a pilgrimage within our borders.

Bartram was, perhaps, the first Anglo-American who established a Botanic Garden for native plants as well as exotics, and who travelled for the discovery and acquisition of novelties. At the then distance of about three miles from the city, on the Schuylkill River, he built with his own hands, and laid out a garden with a fine exposure, of about five acres, subsequently much increased, and from hence communicated, to the curious in Europe and elsewhere, his discoveries for the benefit of science, commerce, and the useful arts. He travelled several thousand miles in Florida and Carolina, bringing seeds and even plants on these laborious journeys, being fortunately a good botanist for that day—Linnæus said the best natural botanist known. He explored various northern points on the same errands for pay that could have been the least part of his reward.

He was a man of modest and gentle manners, frank, cheerful, and of great good nature; a lover of justice, truth, and charity; he was never known to have been at enmity with any man. His religious creed may be collected from the inscription by his own hand, in very conspicuous characters upon a stone which is shown in the wall, as follows:—

"'Tis God alone, Almighty Lord,
The Holy One, by me adored.
John Bartram, 1770."

* See Frontispiece.

This may show the simplicity and sincerity of his heart, which never harbored nor gave countenance to dissimulation.

The simplicity of his style of life is well portrayed by one of his visitors, a French gentleman named Hector St. John, who published an account of his visit; he stayed with him a few days, and says: "We entered into a large hall where there was a long table full of victuals; at the lowest part sat his negroes; his hired men were next, then the family and myself, and at the head, the venerable father and his wife presided. Each reclined his head and said his prayers, divested of the tedious cant of some, and of the ostentatious style of others." Astonished by his knowledge, the visitor said: "Pray, Mr. Bartram, when did you imbibe the first wish to cultivate the science of botany? Were you regularly bred to it?" "I have never received any other education than barely reading and writing," was his reply. The beauty of plants early attracted him, and he studied Latin for three months, enough to understand Linnæus, and acquired himself a general knowledge of every plant and tree to be found on our continent.

Peter Collinson, one of the most constant correspondents of Linnæus, highly distinguished as a naturalist in London, soon found out our natural botanist, and their correspondence, rescued some years back from smoke and dust in an old loft of the mansion, by Dr. W. Darlington, forms one of the most entertaining and instructive volumes; Peter is constantly urging Bartram for seeds and plants and tortoises; in short, for everything new; their intercourse is sometimes highly amusing and quaint. Some dried plants being received in London, Collinson says: "I shall, at my first leisure, send thee their true botanical names, and shall send thee more paper; but one quire a year will be sufficient." The instructions sometimes run thus: "If thee observes any curious insects, beetles, butterflies, &c., they are easily preserved, being pinned through the body to the inside of the box. When thee goes abroad, put a little box in thy pocket, and as thee meets with them put them in, and then stick them in another box when thee comes home. I want a *terrapin* or two. Put them in a box with earth, and they will come safe. They will live a long while without food." Again: "In the course of thy travels, or in digging the earth, or in thy quarries, possibly some sort of figured stones may be found, mixed with earth, or stone and chalk. What use the learned make of them, is, they are evidences of the Deluge!"

The amount of patronage to Bartram, never large, is gathered from the correspondence: "I shall divide the seeds in proportion to my three contributors; Lord Petre is ten guineas; the Duke of Richmond five, and Philip Miller five. Send more black walnuts, long walnuts, and both sorts of hickory, acorns of all sorts, sweet gum, dogwood, red cedar-berries, allspice, sassafras. * * * Virginians are a very gentle, well-dressed people, and look, perhaps, more at a man's outside than his inside. For these and other reasons, pray go very clean, neat, and handsomely dressed to Virginia. Never mind thy clothes: I will send more another year." * * * "I have heard of thy house, and thy great art and industry in building it; it makes me long to see it and the builder." * * *

"Pray, look out sharp next year, and be beforehand with that saucy raccoon, that I may see that pretty nest built in the bush; and send the wasp, and a better specimen of the clay-wasp; for the last wanted its head."

John to Peter sayeth: "I take thy advice about books very kindly, although I love reading such dearly; and I believe, if Solomon had loved women less, and books more, he would have been a wiser and happier man than he was." * * * "I sent Gordon a fine parcel of hollyberries, the getting of which had like to have broke my bones. I was on the top of the tree, when the top that I had hold of, and the branch I stood on, broke, and I fell to the ground. My little son was not able to help me up; my pain was grievous; afterwards very sick; then in a wet sweat, in a dark thicket, no house near, and a very cold, sharp wind, and above twenty miles to ride home."

A sensitive plant sent Collinson amuses all who saw it; he says: "Whilst the Frenchman was ready to burst with laughing, I am ready to burst with desire for root, seed, or specimen of the waggish *Tipitiwitchet* sensitive. If I have not a specimen in thy next letter, never write me more. I wish it was in my power to mortify thee as much. Pray look where grows nearest, some Azaleas, Kalmias, and Rhododendrons." * * * Again: "O, Botany! delightfulest of all sciences. There is no end to thy gratifications. I have sent Linnæus a specimen of *Tipitiwitchet* sensitive; only to him would I spare such a jewel; he will be in raptures." * * * Lady Petre sent over to Bartram the seed of a pear, which was planted, and in 1763 it produced fine fruit; Bartram says: "I think a better is not in the world." The tree still exists near the old house, and annually its fruit is one of the pleasant things to call up old reminiscences at our Horticultural exhibitions. The same year he says to Collinson: "The variety of plants and flowers in our southwestern continent, is beyond expression. Is it not, dear Peter, the very palace garden of old Madam Flora? Oh! if I could but spend six months on the Ohio, Mississippi, and Florida in health, I believe I could find more curiosities than the English, French, and Spaniards have done in six score years. But the Indians, instigated by the French, will not let us look at so much as a plant or tree in this great British empire." The grafting of the pear on the quince had already attracted the attention of the knowing ones. In 1763, Peter writes: "What I am persuaded will prevent its dropping its fruit, if some quinces were planted in the lower part of thy garden, near the spring, and graft them with the pear—it meliorates the fruit. By long experience, all our pears are grafted on quince stocks, and succeed better than on pear stocks with us." * * * "I am no stranger to the native bread of Carolina and Virginia. It is a *Tuber Terræ*, or earth fungus. I have it sent me, near as big as my head. In time of want it is of great importance to the Indians. They call it *Tuckahoe*." * * * "The *Stuartia* flowered for the first time at Kew, which is the paradise of our world, where all plants are found, that money or interest can procure. When I am there, I am transported with the novelty and variety, and don't know which to admire first or most."

These few specimens, of a most interesting and curious correspondence, taken almost at random, will serve to exhibit the character of the book, and to afford the visitor of the gardens reminiscences of its occupant, and of his occupations. Young men must remember that Bartram was *self-educated*, and that the present times afford a thousand facilities for acquiring knowledge which were wanting to Bartram; by his knowledge he was introduced to the friendship of the greatest minds of his day; Logan, Franklin, Jefferson, Michaux, Dillenius, Gronovius, Sir Hans Sloane, Solander, Philip Miller, Kalm, Fothergill, Catesby, &c. &c., all sought his acquaintance or correspondence, and all sought to benefit him. The whole story is to us the most interesting colonial reminiscence extant, and we again and again congratulate the gardening world that Dr. Darlington was intrusted to complete a task that will for generations afford pleasure to thousands.

EFFECTS OF MOONLIGHT ON VEGETATION.

Professor Lindley, in his new edition of *The Theory and Practice of Horticulture*, a work of the greatest merit, now greatly enlarged and assuming the size of a bulky octavo, makes the following remarks on the effects of moonlight upon vegetation:—

"As far as is yet known, solar light alone has the power of producing any practical effect upon vegetation. That of the moon has, however, been shown to be not without influence. That the moon has a great mechanical effect upon our globe is undisputed. Of this, we need not say that the perpetually alternate ebbing and flowing of the tide affords the most evident proof. But, whilst the effects of the moon are admitted to be extremely powerful in this respect, the influence of her light, except as regards illumination, has been often considered by scientific men as inappreciable; and the proverbs to the contrary, current among the unlearned, have been accordingly estimated as popular errors. It has, however, been at last demonstrated that the moon's rays are very far from powerless. We learn from a note by M. Zantedeschi (*Comptes Rendus*, October, 1852), that these rays do affect vegetation. This philosopher states that the influence, physical, chemical, and physiological, of the moon's light, which has hitherto been the object of so much research and speculation amongst scientific and agricultural writers, has been recently investigated by him in consequence of his having had occasion to give a historical summary of the works on the subject. In the course of his inquiries he found it necessary to clear many doubtful points, in doing which his attention was forcibly arrested by the movements exercised in mere moonlight, under certain circumstances, by the organs of plants; and this led him to make the whole subject a serious and profound study. His observations were commenced in 1847, in the Botanic Garden at Venice; they were continued

in 1848 in the Botanic Garden at Florence, and at Padua in 1850, 1851, and 1852. In the whole series of his experiments, M. Zantedeschi always remarked certain motions in plants having a delicate organization as soon as they were brought under the influence of the lunar rays. In those experiments the rays were always diffused, being neither concentrated by lens nor mirror. Such movements could not be obtained by the action of heat, in whatever way thermal influences were applied. It was in vain to elevate or depress the temperature: in the absence of moonlight the phenomena in question could not be elicited. The plants on which M. Zantedeschi principally experimented were Mimosa ciliata, Mimosa pudica, and Desmodium gyrans. He always took great care to determine exactly the position of the leafstalks and leaflets of the plants after they had been exposed to the open air, and before they were directly illuminated by the lunar rays. He thus avoided any causes of error which might have arisen from the imperceptible motion of the air, or from a slight change of temperature; and he satisfied himself fully that the effects observed did result entirely from the action of the rays of light from the moon. Without entering into minute details, it is sufficient to say that the results were ascertained when the temperature of the air was 70° Fahr.; and when Saussure's hygrometer indicated a medium state of humidity. Under such conditions, the leafstalks of Mimosa ciliata were raised half a centimetre, or about four-tenths of an inch; those of the Mimosa pudica were raised one inch and two-tenths; whilst the leaflets of Desmodium gyrans exhibited distinct vibrations. It was thus demonstrated that moonlight has the power, *per se*, of awakening the Sensitive Plant, and consequently that it possesses an influence of some kind on vegetation. It is true that the influence was very feeble, compared with that of the sun; but the action, such as it is, is left beyond further question. This being so, the question remains; what is the practical value of the fact? It will immediately occur to the reader that possibly the screens which are drawn down over hothouses at night, to prevent loss of heat by radiation, may produce some unappreciated injury by cutting off the rays of the moon, which Nature intended to fall upon plants as much as the rays of the sun.

"Even artificial light is not wholly powerless. De Candolle succeeded in making Crocuses expand by lamp-light, and Dr. Winn, of Truro, has suggested that the oxyhydrogen lamp may be made subservient to horticulture in the long dark days of winter. It does not, however, appear that this hypothesis rests upon any experimental basis."

WHEN AND HOW TO PLANT TREES.

BY WILLIAM SAUNDERS, GERMANTOWN.

(CONCLUDED FROM PAGE 555 OF LAST VOLUME.)

THE importance of air to the roots of plants, and the necessity for placing them under its influence, has originated the oft-repeated advice, "Never set a plant deeper than it was before removal." The maxim is worth repetition. The collar, or neck of a plant, that is, the point from whence the stem and roots proceed in opposite directions, should be kept on a level with the surface. The natural growth of the roots of different trees will indicate the treatment they should receive. The pine and fir tribes seldom strike deep roots; they should be carefully spread out and slightly covered. Those that form strong perpendicular roots, as oak, hickory, pear, &c., should be planted accordingly, without bending or spreading any of the roots.

The most difficult to transplant are those which form fewest fibry, or small roots; every care should, therefore, be taken with such; all jagged and bruised ends cut smoothly across, to hasten the formation of young fibres. The roots are similar to the branches—pruning increases the quantity of shoots. Hence the more frequently a tree is removed, the less risk attends the operation.

In planting, care should be taken to imbed every root and fibre with soil; avoid the injurious custom of swaying the plant about, or shaking it up and down, with a view to settle the soil among the fibres. A portion of finely divided soil should be thrown over the roots and carefully introduced by hand into all the crevices formed by the roots. The plant will now be firm, and, unless large and heavy-topped, will not require staking, which, unless closely watched, injures the bark, and not unfrequently induces disease.

It is seldom necessary, at least with deciduous trees, to apply water at the time of planting. There is much harm done to recently planted trees by the application of what are termed "copious waterings." The soil, at planting seasons, is generally moist enough for the preservation and growth of the roots, and anything more is injurious rather than beneficial. Evergreens require different management in this respect; they have an extensive leaf-surface to supply with moisture; and if the soil has been shaken away from the roots at removal, or the season be dry, they should receive a thorough watering.

It is an old practice, and a very safe one, especially with large-sized trees, to pour water into the holes until the soil is rendered to a mortar-like consistency; the water carries the soil into every crevice, and imbeds every root. When properly managed in this way, a dry *spell*, during the latter end of July, will be found a good time to remove large-sized evergreens, provided the roots are not exposed for any length of time during the operation. Before being finally filled, the water should be allowed to settle, and always fill the holes with reference to a sinkage,

greater or less, of course, according to the depth of fresh soil; it is better that the tree should stand slightly elevated, rather than appear lower than the surrounding surface.

The summer treatment of newly-planted trees requires notice. It is well known that after a continuation of dry weather, all crops, and trees of large size, are checked in growth. When such results are visible upon well-rooted trees, it is evident that recently planted ones must suffer a still greater check. To overcome this difficulty, we must first get a supply of moisture in the soil, and then keep it there. Preparing deep holes, and breaking up the subsoil, effect the former, and stirring the surface, or mulching, the latter. It has been well proved that stirring the soil, so as to insure a loose surface, is highly beneficial to all growing crops. Air is admitted to act more perfectly upon the substances from which plants derive their nourishment; and, in dry weather, the escape of moisture is prevented; the loose soil acts as a mulching. Where the surface is compact, the sun's rays dry the ground to a greater depth than they do where it is loose. When the particles of the soil are in close contact, the uppermost, parched by the sun, extract humidity from those immediately under them; and these again from others still lower. On the contrary, when the surface is loose and well pulverized, it may lose its moisture rapidly and become dry; yet, from imperfect cohesion with the inferior portion, the latter cannot readily communicate its moisture. The loose surface soil having its pores filled with air, becomes an interposing medium which protects the under stratum from the drying effects of the sun's rays.

It is not only in dry weather that a compact surface is injurious. All the rain which falls during summer is fully required for the growth of vegetation, and, perhaps, would be found amply sufficient, provided the ground was properly trenched and drained. But when the surface is compact, and *baked* into a hard crust, the rains escape without penetrating to any useful depth into the soil. A loose surface is, therefore, one of the most efficient preventives of evaporation, and the simplest and cheapest kind of mulching that can be used.

AN EXPERIMENT WITH THE OSAGE ORANGE.

BY J. E. ALEXANDER, WASHINGTON, OHIO.

THE hedge value of the Osage Orange must be ascertained from actual experiments. Believing that a collection and comparison of facts already discovered would go far to settle the question, I will venture to add a modicum from my own experience to what has been said in your practical and useful journal. One hundred and fifty yards of hedge were planted in double rows with the plants one

foot apart. These were cut down during the first three years, respectively, to within six, eighteen, and thirty-six inches of the ground. When four years old, the hedge was seven feet high, beautiful and impassable, except for small pigs, &c. It was now manifest that, even if I had cut down more severely, it would not have been sufficiently close at the bottom; because the cutting produced shoots *too few and too upright* to close the fence. A heavy trimming made a few rampant upright shoots. This, in rich soil, is commonly the great difficulty. The few horizontal branches are deprived of vigor and vitality by the rapid growth of these *leaders*.

Instead of despairing of success, armed with stout gloves and a fine-toothed saw, I cut one hundred yards down to stumps only four inches high. When the first crop of shoots had started and grown three inches, I commenced "the pinching process," by nipping their tender tips with the thumb and fingers. This stayed their progress until they could branch again, and it had a twofold effect. First, it formed a second tier of branches just where they were needed, and where the old method could have formed them only after another season, by cutting away almost a whole year's growth. Second, it threw back the sap, which would have pushed up the rampant leaders, into the dormant buds on the stumps still nearer the ground than those which first started and were nipped. These new shoots, in coming up, had to spread somewhat horizontally. When they had grown about the length at which the first ones were stopped, they too were nipped. By this time (about two weeks from the first pinching), those shoots which were first stopped were breaking thickly and beautifully into side branches, the leaders of which were also pinched when they had grown about four inches, stopping them until, in two weeks, they would branch and form the third tier, which the old method would have got by cutting down after another year.

Thus, before the end of the season, notwithstanding these checks, the hedge was again *four feet* high, presenting a wall of glossy foliage, and so thickly woven throughout with twigs and thorns as to be impassable by the smallest domestic animals. It is now two years old from the stumps, is seven feet high, and entirely satisfactory.

It should be remarked that the pinching need not be continued longer than until you have thickened your hedge to the height of about three feet. After securing this prime object, it will require less attention, and you can trim and shape it with knife and shears as you please.

Any one can, in this way, *compel* the Osage orange hedge to grow as thick at the bottom as he pleases.

The advantages are—that you can begin as low as you please, make as many shoots as you please, locate them where you please, and *secure the results of three years in one season*—I mean in getting the hedge thickly closed at the bottom.

Besides, the whole vigor of the roots and the whole growth of the plants (except the trifling amount pinched off) are at once made subservient to perfecting the hedge. I may add that, in addition to saving and directing the whole

growth aright, the pinching is much less injurious than the heavy lopping of shoots two or three feet long, annually, for three years.

Nor can it be a valid objection that too much time and attention are requisite during the one summer in which the pinching must be done. A careful consideration of what has been said above, or at least actual experiment, will prove that time and trouble have been saved.

The operator will be surprised at the speed and facility with which he can nip out the tender tops, compared with the time and toil of cutting the large, hard, and thorny wood of a year's growth.

Even if hedges could not be treated so "by the mile," this will not diminish the importance of the method to thousands of cultivators around our cities and villages, whose valuable products can be secured only by an impassable barrier of thorns.

For such purposes, the Orange hedge is unrivalled. To the fruit garden it is a body-guard of spearmen, ever ready to impale transgressors.

I do not say that hedges cannot be made thick and close by any other method, but only that I have found this a certain method, and I think it the best.

I should add, that in treating a newly-planted hedge, I would allow it to grow for one season to establish the roots. The next spring I would cut down to within three inches of the ground, and then commence the pinching of young shoots, as already described.

The extent to which the roots will exhaust the soil, being in proportion to the height and breadth allowed to the hedge itself, is very much under our own control in trimming. You may also root-prune by a deep furrow, which will limit the extension of the roots near the surface, and there will be no trouble with suckers.

ON THE CULTURE OF THE GESNERIA SELLOWII AND BULBOSA.

BY EDGAR SANDERS, ALBANY, N. Y.

THE two plants above mentioned may, perhaps, be considered too old, especially the last named, to require any writing about. However this may be, I venture to send a few practical directions which may not, perhaps, be in vain, as I do not remember to have met with any remarks on this fine stove plant, in the published volumes of the *Horticulturist*. The *Gesneria bulbosa* is an old acquaintance, having been known for many years, while the *Sellowii* is of comparative recent introduction (1837), altogether superior to the former, and I hesitate not to set it down as one of the best plants that can be grown in the hothouse for winter flowering. The principal difference in the two is, that in bulbosa, the flowers all spring from a common centre, while in Sellowii they spring from

lengthened terminal racemes, in length somewhat in proportion to the health of the shoot, so that the number of flowers, often three inches long on each stem, is much greater in this than the old one. The leaves are also larger and more heart-shaped; both are very downy, and when well grown, form not the least interesting features in the plants.

Like many of our beautiful hothouse flora, they are natives of the southern part of this hemisphere (Brazil), and although introduced so many years, it is by no means so common as its merits deserve. It is allied to G. faucialis.

CULTIVATION.

The principal feature in the growing of this kind of bulb in perfection is, the giving them a distinct season of rest and growth, the former by entirely withholding water for a time. We have now plants not over three or four years old, with as many as eighteen shoots finely breaking forth; perhaps some of these may not come to perfection, but it will be more from want of pot-room than inability of the plant to carry them. They are more generally seen with from two to three stems only. By introducing them to the hothouse at different times, a succession of plants is the result; our earliest bulb has eight shoots, which are fast advancing to flower.

About the first of September, we introduce the first, cutting off the old shoots whether decayed or not; this is highly important, or the shoots will start only one or two at a time, the strongest taking the lead, and starving the remainder to death. Give little if any water, till they begin to break, and as soon as they have nicely started, shake away the old soil pretty clean, not injuring the roots, and repot into the same sized pot. When the roots get well to the outside of the earth, we give them the final shift, depending entirely upon the number of shoots the plant is expected to perfect, as to the additional sized pot the same will require. But it may be safely taken as a rule, that a plant with three shoots only, will have room enough in one size larger; with six shoots, two will not be too many, while for twelve or eighteen, at least four sizes will not be too much. This kind of potting requires a cautious preparation of the soil as to its mechanical texture, or there will be danger of the soil becoming sodden before the roots can fill it. But with this care it is unquestionably the best mode, as the roots have then perfect freedom without being disturbed by the process of repotting. When out of flower, and the beauty of the foliage is no object, they may be stood anywhere out of the way, but should not be moved out of the stove till May, after which a sunny place in the greenhouse or pits will do, watering them seldom. By midsummer, lay them on their sides under the stage, selecting the earliest first—the rest, a little while after; give no water till wanted to start again for winter. They can be easily raised by cuttings, leaves, or seed. The soil should be light and friable—two-thirds may be rotten leaves, or the soil from pine barrens; one-third turfy loam, and at least a sixth of the bulk white sand and fine pieces of charcoal.

SOUTHERN APPLES.

BY H. R. ROBEY, FREDERICKSBURG, VA.

MR. EDITOR: Having frequently been asked for a list of *winter* apples, adapted to the Southern and Middle States, I herewith send you a list that may be relied on; a part of them originated in Virginia and North Carolina:—

ABRAM.—Medium size, dull red stripe, peculiar, agreeable aromatic flavor, will keep till May, a great bearer.

BEVERLY'S RED.—Rather large, red, very good.

CART HOUSE.—Medium, red, long keeper, fair quality.

BONUM.—Large red, good bearer, one of the best.

HEWE'S CRAB.—Small, superior for winter cider, a great bearer.

WAUGH'S CRAB.—Rather large, lively red, flesh very white, fine grained, makes a fine white cider in January, in the spring it is one of the best eating apples, very juicy and sweet, will keep till June.

HOLADY'S SEEDLING.—Large, yellow and russet, flesh a little coarse, very tender and juicy, a good keeper, one of the very best.

RAWLE'S JANETTING.—Large, stripe on a yellow ground, well known as rich and juicy, bears and keeps well, and one of the best.

LIMBERTWIG.—Rather large, dull red, and yellow, a regular and good bearer when kept in dry sand, to prevent shrivelling, until March; it is a rich, tender, juicy apple.

LEATHER COAT.—A great bearer, and keeper, quality fair.

MILAM.—Red, rather a shy bearer, until the trees are fully grown, quality very good.

OGILBY.—Large, greenish yellow, quality very good, great bearer.

BROOKE'S PIPPIN.—Very large, yellow, flesh very tender and juicy, keeps well until spring, great bearer; the best.

PRIOR'S RED.—Large, irregular stripe, spotted and russet, the best.

LONG ISLAND RUSSET.—Large, keeps pretty well.

STRAWN'S SEEDLING.—Large striped, good bearer, very good.

BELL PREE.—Large, greenish yellow, very good.

ALBEMARLE, OR MOUNTAIN PIPPIN.—Very large, greenish yellow, very tender and juicy.

C. C. WELLFORD.—Rather small, handsome yellow, very tender, rich and juicy, will keep till June; the best.

WINTER QUEEN.—Handsome stripe, good for early winter.

VANDERVERE.—Dull stripe, a great bearer, keeps well, very good.

WINE SAP.—Large, dark red, a good and early bearer, very good.

THE LATE GALE AT THE EAST.—A gentleman of Hartford, Conn., weighed a branch of a tree that had been broken by the weight of ice upon it, and found that it weighed eleven pounds. The ice was then melted off, and the branch weighed only half a pound. This great proportion of ice accounts for the destruction of trees and branches.

IRON VASES.

THE manufacture of ornamental articles from Iron has arrived at great perfection in Philadelphia; particular attention is paid to this department by Mr. Robert Wood, on Ridge Avenue, who has a most extensive establishment, and artists regularly employed in making designs for iron railings, vases, &c. One of the latter we have obtained permission to copy as every way suitable for a garden, terrace, or other situation, where such an article is wanted. From time to time we shall give other designs from this source, believing that they supply an extensive want for permanent ornamentation. The base is also of iron.

BUTTER.—A lady in New Jersey, who supposes our knowledge more extensive than it really is, asks how to make butter come? A good plan would be to pack it up nicely and put it on the —— railroad; it would be sure to come *if properly directed.*

Editor's Table.

THE VINEGAR PLANT.—The hint thrown out in the December No. respecting this valuable plant, attracted considerable attention. It appears that what was considered a strange novelty, is known and employed by many persons in various parts of the Union; the circumstance is an evidence of the necessity we all are under of being taught, and will serve to show the utility of periodicals. Complaints were rife that good vinegar was not to be bought, especially after a bad apple year; notices of this substance occasionally struck us in English publications; and we remembered it at Kew, but what was it, and where was it?

We applied first to the head-quarters of Science, but the oracle, much interested, however, knew it not, but applied to others learned in that walk of botany; the first reply declared its faith small in the vinegar fungus. A second had no doubt it could be produced, but practically knew nothing of its value. Then came several letters from various points of the compass stating that the plant was in their neighborhood, but its practical use they could not describe. "I tasted," says one, "part of a barrel made by the plant yesterday, and it was certainly excellent; it was made by an Englishman, and he says it is the same as is used in England." Another says: "The plant can be obtained of * * * * Ann Street, New York." Another correspondent says: "I knew nothing about the vinegar plant till a few months past my wife procured one, and has ever since made her own vinegar with it, and the vinegar is the best I have tasted for years."

Then came a letter from Naperville, Illinois, saying: "The vinegar plant you described on page 570 (Dec. No.), *Horticulturist*, as 'exhibited at Kew Garden Museum,' we have and use. Your description of the mode of making vinegar is much the same as ours, except that we do not always use the yeast. It is the least expensive mode of making good, wholesome, vinegar I know of. Most of the various kinds of patent vinegar are fit only to be 'cast out and trodden under foot,' being pernicious to health.

"I would advise all who have not cider vinegar, to use the vinegar plant, or the following receipt, in making their vinegar: To 16 gallons water put 16 pounds common brown sugar, add 1 gallon molasses; scald together, put into a cask, and when cooled to about blood-heat, put in 1 pound bread-dough, *raised by hop yeast;* place the cask in the sun or some other warm place. In two or three months (according to the temperature), it will form as good vinegar as that made from cider. Should you wish it, I will forward you, by express, some of the plant; but you can *produce* it as above. Respectfully yours,

"LEWIS ELLSWORTH."

"In reply to your communication about the vinegar plant, first: It is curious and very *tender;* if frozen, turned over, or moved around, it dies; when dead, it sinks to the bottom at once. The value of it no family knows till they have had it. Money could not buy mine, if I could get no more. A family, with one plant, can always have plenty. As to economy, the value of one pint of West India molasses, one gallon of water, six weeks of July weather, or by a warm stove, and you have as fine vinegar as ever was placed on table. It improves by standing, after the plant is taken off and the vinegar put into a keg. The plant floats on the top, and must not be disturbed after it is placed on the surface, and the same when taken off from the mother plant. A small piece grows to cover the top of a bucket or jar, to half an inch thick; when the vinegar is perfect, it begins to sink; it must then be removed

and a new preparation made; you will find new leaves or folds on the under side, which must be put on the new preparation. Yours very respectfully, H. H. RANDALL, *New York.*"

ANSWERS TO CORRESPONDENTS.—(GRAPE-VINES.) 1. What time should grape-vines be trimmed? 2. When should the slips be set? 3. And what time should young plants be transplanted? AUGUSTUS RICE.

1. November is the best time to prune either native or foreign grape-vines. Plants absorb much nutriment by their roots during winter. By pruning at this time the buds that are retained have the benefit of the winter accumulation, and will, in consequence, grow more vigorously.

2. Native varieties are propagated by cuttings; collect these, when pruning, and cut them in lengths, each having three eyes or buds. Prepare them by cutting off close under the lower bud, and about one inch above the upper. Bury them in dry soil, and plant them as early as convenient in spring; choose a sheltered spot, and press the soil well about them.

Tender sorts are generally raised from single eyes, with about an inch of wood to each. They are planted in pots or shallow boxes, and placed in a hotbed, where there is slight bottom heat. They root readily in this manner.

3. For several reasons, spring is the best season for transplanting in the Middle and Northern States. The roots should be carefully spread out, near the surface, and mulched with rotted leaves or manure during the summer. They should be pruned down to two buds, and the weakest of these rubbed off, after they begin to grow. Plants in pots may be set out at any time during spring or summer. One year old plants are preferred for transplanting, either in the vineyard or grapery.

(J. J. DELCHAMPS.) With regard to your persimmon-trees, we should be inclined to witness such a fact before deciding. Your tamarind seeds came up "locust-trees" because none but a botanist could distinguish the difference in the pinnated leaf. Wait till they bear, *if they ever do;* the tamarind is a tropical fruit.

TORONTO, U. C., *Tenton Cottage, Dec.* 20, 1855.

TO THE EDITOR OF THE "HORTICULTURIST." SIR: Would you have the kindness to state, at your earliest convenience, what may be considered the *best* twelve varieties of apples of the following: 12 table (autumn sort); 12 table (winter sort); ditto pears, and oblige

Yours truly, J. D. HUMPHREYS.

Best Twelve Autumn Apples.—Autumn Pearmain, Clyde Beauty, Fall Pippin, Gravenstein, Hawley, Jefferis, Late Strawberry, Melon, Northern Sweet, Porter, Republican Pippin, Smoke House.

Best Twelve Winter Apples.—Baldwin, Bailey Sweet, Esopus Spitzenberg, Hubbardston Nonsuch, Jonathan, Ladies' Sweeting, Monmouth Pippin, Northern Spy, Red Canada, Rhode Island Greening, Swaar, Wagener.

Best Twelve Autumn Pears.—Beurre d'Anjou, Beurre Clairgeau, Brandywine, Chancellor, Duchesse d'Angouleme, Doyenne Boussack, Flemish Beauty, Kingsessing, Kirtland, Seckel, Tyson, Urbanite.

Best Twelve Winter Pears.—Beurre d'Aremberg, Beurre Easter, Beurre Gris d'Hiver Nouveau, Columbia, Cross, Doyenne d'Alençon, Glout Morceau, Lawrence, Passe Colmar, Prince's St. Germain, Vicar of Winkfield, Winter Nelis.

In regard to "cooking pears," which our correspondent asks about, we would remark that the finer table kinds are as suitable for culinary purposes as those that are good for nothing else. Then why cultivate varieties for the kitchen that are worthless for other purposes? The Pound Pear, however, keeps so well we must recommend it for this purpose.

(S. Miller.) Your invention we shall probably employ. The apples drawn have been described.

(Dr. C. Clark, Covington, Indiana.) The committee on the Mathews curculio remedy will probably never report, because they have nothing to say, as we understand it.

(A. N. Wylie, Chesterville, S. C.) 1. All the family of junipers or cedars graft very readily on each other. The mode most usually employed is that called wedge-grafting. Evergreens require more care under the operation than deciduous trees, and are operated on with the use of glass, as, when fully exposed to the open air, they are with difficulty prevented from drying up before a union takes place. In the open air, whip-grafting, with the end of the scion stuck in a potato, sponge, bottle of water, or anything that would give out moisture, would be the best mode of procedure. Half ripened wood must be employed for scions.

2. The Sequoia (Wellingtonia) gigantea and California cypress, can be had in the Philadelphia and Rochester nurseries, at about two dollars each—small plants of course. Cupressus sempervirens we have seen in Philadelphia nurseries; it is not considered hardy enough for northern nurserymen. Your promised favors will be very welcome.

(J. S., Lithgow.)—Dwarfing Apples. You will find much useful information in *Barry's Fruit Garden*. All kinds of apples may be dwarfed on either the Paradise or Doucain stocks—which are seldom raised in this country, but are for the most part imported from France, where they are raised from seed.

We have a larger pear yet for the "Country Gentleman," which will go far to fill the barrel in which he "bottles daylight!"

Saxonius will pardon us if we do not insert his little poem, which has merit; but we are crowded with matter of greater interest to our readers.

The Culture of the Grape, and Wine Making.—By Robert Buchanan. We are not surprised to see a sixth edition of this very valuable and interesting manual, from the Cincinnati press. It is exactly what its purchaser wants, is full of facts, and not a word too much will be found in its pages. It is a highly creditable and extremely useful work, which should be in the hands of all who have a grape-vine or a strawberry bed, the latter fruit being treated of in a supplement. Mr. Buchanan's name is favorably and inseparably connected with the enterprise of grape-growing in the West.

J. J. Thomas will accept our thanks for a copy of his *Annual Register of Rural Affairs*, published by Luther Tucker & Son, Albany. It is well done, and the best almanac for the farmer, &c. The report of the New York Fruit Growers Society came too late.

Canada.—We have to acknowledge many favors in the way of subscriptions and good opinions from Canada, where there evidently exists a large class of tasteful lovers of Horticulture. We should be pleased to hear from some of them respecting their gardening, and other experiences.

Acknowledgments are due to several friends to whom private letters seemed more proper than publicity, but there is one which deserves this kind of reply. Thaddeus Davids & Co., manufacturing stationers, New York, have forwarded us a year's supply of both black and indelible inks, sealing-wax, and extra scarlet congress wafers, which are all of the best quality, and are rendered more valuable by the graceful manner in which they were presented. They close their note, and a famous subscription list, thus: "With our best wishes for the complete success of the *Horticulturist*, and the hope that you will soon be enabled to

say that its subscription list is longer than any other monthly now published, which, in our opinion, it richly deserves; a single article has been of more value than ten times the cost."

A SMALL POST, 4½ feet long, morticed and braced in a sill, is set 2 feet in the ground, at each end of a row of raspberries, and a wire, about No. 6 in size, is drawn tight from one to the other along the bushes. The vines are kept in their places by a small wire loop, attached by both ends to the wire and encircling all the canes in one stool, or less, as you may fancy. This apparatus is less trouble, when once arranged, and lasts much longer than the old method of putting a stick at each hill, and as it shows but little, of course looks better.

SUBSCRIBER.

WEST TOWN, *Mass.*—DEAR SIR: I should like to send you some of my seedling potatoes in the spring. They are from the "caster" variety. They are very productive—the parent yielding more than two hundred and seventy-five, and the highest five hundred and eighty bushels per acre, without any manure, except plaster and ashes.

I have also some nine hundred to one thousand varieties from the boll, not yet perfected. I will send you a good variety of choice squash seeds.

I have found out a sure preventive of crows and worms working on corn and other grain; also to keep off bugs on vines, and it is *sure cure;* and last year I tried the same on plum-trees, and kept off the black knots, and it works to a charm; for, out of five plum-trees, in a row, to the two middle ones I applied the wash, and they had not a knot on them, and grew double what the others did, and the others were covered with black knots. I cannot say that it will always do the same, as I have only tried it on trees one year. I have applied for a patent. If generally used, it will add millions of bushels of grain to the yearly product.

Yours truly, and very respectfully, D. A. BULKELEY.

THE SEASON OF 1855.—The extreme cold weather which prevailed in February of 1855, was fraught with danger to all kinds of fruit-trees and vines. Fortunately, with us in Western New York, the peach-tree and grape-vines were the only sufferers. The loss of the peach is a calamity, for it seems a very necessary luxury, and is always considered a great promoter of health. So, also, with the grape. Some few produced on vines, not exposed, from the Catawba and Isabella, and instances of the Clinton, were had, but generally a failure in the crop. While many of the peach-trees were killed (the old ones) the young ones, from protection of the snow, escaped, which have made a wonderful growth—having a promise of fruitfulness for 1856.

We look forward to large crops for the coming year. We can add that, we have never known such a bountiful supply of first rate pears as 1855 produced. White and gray Doyenee, Stevens' Genesee, Seckel, Sheldon, Louise Bonne of Jersey, Duchesse d'Angouleme, and splendid Duchesse of Orleans, we luxuriated upon. Our fruits matured finely, and had all their characteristics of juice, flavor, and aroma.

Up to the 20th of November, the weather remained so mild that we had under our windows that charming, fragrant plant, the Mignonette in perfect bloom. This day, the 25th of December, almost the first snow of the season has appeared.

We went to call on our mutual friends, Ellwanger & Barry, and they provided a substantial treat of winter pears, worthy of the day.

We hope to not give offence if we mention, in this public manner, what a luxury we found them to be. A discussion is sure to arise amongst those who love fruit, especially when one

can test their merits. Mr. Barry kindly went to their cellar and brought the Winter Nelis, Easter Beurre, Vicar of Winkfield, Beurre d'Aremberg, and St. Germain.

I need not say they were all good, but the Easter Beurre bore the palm, in our humble opinion. While partaking of their hospitality, I thought of what a service these gentlemen, with others of the same profession in almost every portion of the States, had done our country in the introduction of so many kinds of rare fruits amongst us.

The day was propitious for a walk, and although many of the trees were denuded of their foliage, we could admire the beauty of their symmetry. It was a winter scene of beauty, for the evergreen trees were hung with tapestry of snow. They partook of the day, and were truly "Christmas trees." Ours was a happy day, such as we hope your readers all had.

Truly, JAMES H. WATTS.

ROCHESTER, *Dec.* 25, 1855.

MANCHESTER, ADAMS CO., *Ohio.* DEAR SIR: I planted a lot of dwarf pear-trees on the 11th of April last, and one of them (a Beurre Diel) bore *fine*, good pears, all of which ripened nicely. Have any of your correspondents a tree of present year's planting that can beat it?

Yours with respect, JOHN ELLISON.

[It is not a very unusual circumstance for pear-trees, which have been carefully taken up in spring, to produce the same year. We have on hand a few Easter Beurrés raised under these circumstances the past season.—ED.]

WOODLAND PARK, *Springfield.* DEAR SIR: It is with great interest that I monthly peruse your excellent journal, *The Horticulturist;* it stands the highest of any horticultural work in this country, and seems to me destined to have the largest number of subscribers of any work of the kind.

Having been a subscriber of the journal for the last six years, have been glad to see it prosper, and hope it may continue to give the information that is required at the present day, on the subject of horticulture.

The cultivation of the pear has been my hobby for the last four years, and I have found it a pleasant pastime—have not realized much from my orchard yet, but live in hopes. May we not hope to see this delicious fruit abundant ere long, that all may partake of it?

Yours very truly, D. CHAUNCEY BREWER.

TREES IN ILLINOIS.—J. T. Little, of North Dixon, Illinois, sends us a neat descriptive catalogue of his nursery trees and shrubs, bulbs, &c. The fruit department is very full, embracing sixty thousand trees; but of evergreens, one of the great wants of that State, four varieties only are enumerated. Send at once, Mr. Little, to Liverpool or Angers, and get out some thousands. Dixon, we remember, as a most happy, thriving place.

FOR THE HORTICULTURIST.—W. R. Prince was right when, some time ago, he asserted in the pages of the *Horticulturist* that the "tamarind was not growing in Virginia." His reason was that it was "too tender to stand our mildest winters." Whether this is true or not, I am not well enough acquainted with its habits to say; but my son, Oliver Taylor, being in Winchester, some time since, on business, and being desirous of becoming acquainted with all rare trees and shrubs, inquired for the Tamarind-tree, and was shown a tree that they called by that name, but which he immediately recognized as the Honey Locust (Sweet Locust, Gleditchia Triacanthos of Michaux). They were loth to believe they had been mistaken, but he was too well acquainted with the Honey Locust to be himself mistaken, while the tripple thorns and pods were unmistakable evidence of the fact. YARDLEY TAYLOR.

LOUDON COUNTY, VA.

M. Bonpland, the celebrated fellow-traveller of Humboldt, is still living in Paraguay, rearing the tea of that country, in the eighty-third year of his age, only a little *younger* (*!*) than his quondam friend.

The Dioscorea Batatas, &c.—From several quarters we have favorable accounts of this new yam, but sufficient time has not yet elapsed to pronounce authoritatively on its merits for this country. At a late meeting of the London Horticultural Society, roots were exhibited, and it was stated that small tubers answered better for increasing it than the little pea-like buds formed everywhere in the axils of the leaves. It was also mentioned that, as the thick end of the root is that which penetrates the soil, and as it goes nearly straight down into the earth, deep land is indispensable to its successful cultivation. We are ready to hear and promulgate any experience that may have been had respecting this yam from our correspondents. The following, from the *Gardener's Chronicle*, contains allusion to this and other interesting matters:—

"We have occasionally called attention to the introduction of the Chinese potato (*Dioscorea batatas*) into this country and France; the subject is now discussed at length in a book published by Mr. Henderson, the well-known agriculturist. The plant, he says, is not liable to disease, and yields twenty-four tons to the acre. It appears, too, that a highly nutritious pea from China has been recently tried in France, and with marked success; and the Chinese sugar-cane is found to grow well in Belgium, and produce, as is estimated, 100 gallons of cider to the acre, and a large amount of fibre fit for the manufacture of paper. The Geographical Society of Paris has given one of its medals to Monsieur Montigny, Consul at Shanghae, as a reward for his having sent over the potato above mentioned, and some other useful plants, and the oak silk-worm. Dr. Beauvoys informs the *Société d'Acclimation* at Paris, that the vapor of tow, which has been soaked in a solution of nitre, is an excellent means of stupefying bees, without injury, at the time of taking the honey. At a late meeting of our Horticultural Society, stalks of *Holcus saccharatus* were exhibited which had been grown in the royal gardens at Frogmore; a plant said 'to be grown in India for its grain, and supposed by some likely to prove ultimately a substitute for the sugar-cane.' A bunch of grapes was also exhibited from Earl de Grey's gardens in Bedfordshire—a kind known as Black Barbarossa. It weighed four pounds, measured eighteen inches in length, and a foot across the shoulder."

Botanical.—"The tree is known by its fruits." An exception to this is the dog-wood, which is known by its *bark*.—*Punch*.

Nebraska.—We are glad to welcome to our audience the names of several subscribers from the new territory of Nebraska. Even amid the din of noisy men, the peaceful art of horticulture finds its followers; an evidence that everything is not swallowed up in political discord.

Kew Gardens.—The account of a visit to Kew Garden is continued in this number, and will be concluded in the next; its object will have been attained if it interests the reader to reflect on the immense variety of products which the vegetable kingdom supplies, varying no less in properties than appearance. We are lost in wonder at the marvellous nature of those processes, in which a difference, undiscoverable by all our most refined means of research, are productive of such a number of widely different results. And at the same time, the reflecting mind cannot forget that these results are all of a kind most valuable to man, furnishing him with the necessaries, the comforts, and the luxuries of life; support in health, medicine in disease, and the materials of great part of his clothing, his books, and

various articles which minister to his mental and moral improvement. Kew is a vast museum, where the collected plants furnish opportunities of minute inspection from which no thoughtful individual can retire without having his mind enlarged and elevated; he will rejoice, too, that such an opportunity is offered him, by the patronage of a wise government affording not only the facilities to collect these wonders of nature, but with discrimination to appoint to their care the best men of the century for such a paternal object.

Calendar for February.—We ask attention to the Calendar of Operations in the present number.

The Season.—January with its severe weather, and thermometer so much below zero as we observe has been the case in all directions, has doubtless made many horticulturists fear for the future. Let us, however, *hope*.

Thorburn's Catalogue of Kitchen Garden Seeds for 1856, 15 John Street, New York, is a valuable list of seeds and other matters relating to gardens, which may be had by inclosing a stamp.

Age of some Varieties of Fruits.—The pear *Cuisse Madame* is at least over three hundred years old. The *Bell* pear of our orchards, and which is still a very popular variety, is a seedling from this, or at least generally supposed to be; and this is known to have been in existence at least two hundred and fifty years ago. P.

Apples, Oranges, and Pears.—It is a fact, that should be known to fruit growers, that in the fall of 1854, Havana oranges and good apples brought the same price in our market, by the barrel. In 1855 oranges were half the price. We dare say many a farmer would go into the business and try to learn how to succeed in it, if he were told he could grow fruit of the value of the best oranges. Pears, though it was a good year for them the past season, were worth *much more*, wholesale, than Havana oranges, and the market almost unsupplied. This may astonish many, but it is nevertheless true, and we hope will encourage those who have embarked in the business.

The American Agriculturist, published at New York, by Mr. Judd, for January, is an able number. We think we recognize in the trip to Illinois, one of our fellow-travellers. The *Valley Farmer*, of Louisville and Illinois, we read with pleasure.

The Illinois State Agricultural Report, a goodly and most valuable work, shall receive attention in our next.

Mortality among Chestnut-Trees.—All the chestnut-trees throughout Rockingham County, N. C., and the surrounding counties, have died this season.

Monstrous Yield.—David Smith, of Monroe County, Ga., says that he picked from a single vine on his farm, the past season, one hundred and seventy-six ripe water-melons!

A Fruity Joke.—An amateur of music (who is also a wag) remarked, the other day, with reference to some strawberries on the table, "that he (the wag) would enjoy a pottle of strawberries all to himself, inasmuch as it would be a musical as well as a festive treat, for it would in fact be a solo on the Hautboy."—*Punch*.

Granite Dust a Fertilizer.—A correspondent of the Washington *Intelligencer* says: "While examining the granite quarries at Northbridge, Mass., a few days since, I had a conversation with the workmen who were dressing out the stone, in reference to the dust that they were rapping off with a flat piece of board from the face of the stone they were hammering. The dust is reduced in the hammering of the stone to an impalpable powder, and will float in the air. I said to them that it would be well to try the vegetating powers of this granite dust in a hill of corn. They replied that it had been used in gardens and on grass lands with great success, and that it was equal to the best manure. The granite rocks may be ground to an impalpable powder and used as a fertilizer. Feldspar, a component of granite, yields potash, and may therefore be supposed to possess extraordinary fertilizing power."

The Dhoora, or Indian Millet.—This plant bears a small kind of grain, much cultivated and extensively consumed in India and Egypt, and the interior of Africa; it is quite equal in nutritive value to the average of English wheats, and yields a beautiful white flour. Prof. Johnson, recently deceased, analyzed it, and found that it contained 11¼ per cent. of gluten. Now, since gluten is the chief nutritive ingredient of all our grains, this comparison of the professor exhibits, at once, a nutritive value for the Dhoora that surpasses some of the richest grains in use for the food of man or stock.

Some of this grain has been raised this year by Major R. A. Griffin, of Abbeville, S. C., and it has proven to be a valuable crop, as we learn by the Abbeville *Banner*. He planted it some time in April, four feet in the row, and fifteen inches in the drill, depositing five or six grains in a hill. He afterwards thinned down to one stalk, transplanting to hills that were deficient. This thinning is necessary, from the strong tendency of the plant to sucker and spread. The soil, such as would be selected for common corn, should be properly prepared and manured before planting; the yield is from eighty to one hundred bushels per acre.

Extending his experiments, recently, to the green stalk of the Dhoora, Major G. discovered a cause of its being so much relished by stock, and its singular fattening effects, in addition to the excellent qualities of its grain. He found, on chewing the stalk, which he perceived was consumed in this way by the stock, that it was exceedingly rich in cane juice—but little inferior to the sugar cane itself.—*Scientific American.*

Howard Daniels, Esq., architect of New York, has just returned from Europe with a portfolio of drawings, and many useful and interesting facts regarding houses, gardens, &c., which may be advantageously adopted in this country. Mr. Daniels was much interested in the ornamental effects now produced in domestic architecture, by the proper display of brickwork, and has many designs to exhibit the results in a great variety of forms. This style is just coming into fashion, and may be seen in some recent examples in Philadelphia, where a prodigious effect is produced by simple means united to good judgment and taste.

A gentleman who spends his time and money in foreign lands studying their arts, as Mr. Daniels has done, for the purpose of improving the taste of his countrymen, is entitled to as much credit and notice as he who imports improved varieties of trees or fruits, or fine breeds of animals, and *more* than the professional politicians who carry the day. Mr. Daniels is a landscape gardener as well as architect, and his address is Broadway, New York.

The Impostor's Graft.—Mention is made by Pliny, of a tree in the garden of Lucullus, at Tivoli, which is described in his *Natural History*. On the trunk of one tree he saw branches

which produced pears, others figs, apples, plums, olives, almonds, grapes, &c.; but he adds, that this wonderful tree did not live long.

Even at the present day, the gardeners of Italy, especially of Genoa, Florence, and Rome, sell plants of jasmines, roses, honeysuckles, &c., all growing together from a stock of orange, or myrtle, or pomegranate, on which they say they are grafted. But this is a deception, the fact being that the stock has its centre bored out, so as to be made into a hollow cylinder, through which the stems of jasmines and other flexible plants are easily made to pass, their roots intermingling with those of the stock. After growing for a time, the horizontal distension of the stems forces them together, and they assume all the appearance of being united. M. Thouin, who calls this "The Impostor's Graft" (*Greffe des Charlatans*), tells us that he himself tried the operation with perfect success upon both a linden and an ash tree a foot in diameter. He contrived to give both of them heads of plums, hazels, wild and cultivated services, walnuts, peaches, and vines, the branches of which were thoroughly interlaced. Of one of these he gives a figure, which is here reproduced, and which perfectly illustrates the system.

Horticultural Societies.

Pennsylvania Horticultural Society.—The regular stated meeting of this Association was held on Tuesday evening, December 18, 1855, at Concert Hall, E. W. Keyser in the chair.

Premiums were awarded by the Committee on Plants and Flowers:—

Collection of Twelve Plants—for the best, to Thomas Robertson, gr. to B. A. Fahnestock; for the second best, to Robert Buist. *Specimen Plant*—for the best, to Thomas Robertson; for the second best, to John Pollock, gr. to James Dundas. *For New Plants*—a premium of two dollars for *Balsamina Hookeri*, to the same; of three dollars for *Thyrsicanthus rutilans, Cytisus onospermus, Aphelandra aurantiaca*, to Thomas Robertson. *Special Premiums*—three dollars to Robert Buist, for a collection of Correas, and one dollar to Robert Kilvington, for a fine specimen of *Cypripedium insigne*. *Table Design*—for the best, to Barry Higgins, gr. to

D. R. King; for the second best, to Thomas Meghran, gr. to M. Bouvier. *Basket*—for the best, to J. J. Habermehl, gr. to J. Lambert; for the second best, Mark Hill, gr. to M. W. Baldwin. *Bouquets*—pair—for the best, to John Dick; for the second best, to J. J. Habermehl.

By the Committee on Fruits. *Pears*—for the best six varieties, to John McLaughlin, gr. to I. B. Baxter. *Apples*—for the best six varieties, to Mark Bartleson.

And the Committee noticed with approbation, specimens of a Pear, presented by Robert Buist, the Doyenne d'Alençon, a choice variety. Also, a Grape called Wyman's Seedling, from Joseph Breck, Mass.; large in size, and soft in the pulp, but too far advanced to judge correctly of its excellence, but from the saccharine juice, suppose it good.

By the Committe on Vegetables. For the best display *by a market gardener*, to A. L. Felten. For the second best display *by an amateur gardener*, to Mark Hill. Special premium of two dollars, for three bunches of Asparagus, to William Bright, gr. to Joseph Lovering.

The Library Committee submitted their annual report. An appropriation of three hundred dollars was made for the increase of the Library.

The Committee for establishing premiums, reported a schedule for the year 1856, which, after amendment, was adopted.

Two gentlemen were elected members.

Objects Exhibited.—*Plants* by Thomas Robertson—twelve plants: *Zygopetalum Mackayi, Plumbago rosea, Linum trigynum, Primula sinensis purp-plena, P. albo-plena, Poinsettia pulcherrima, Begonia incarnata, Cypripedium insigne, Pentas carnea, Correa ne plus ultra, Centradenia floribunda, Daphne indica rubra.* Specimen—*Correa Brilliant.* New plants—*Aphelandra aurantiaca, Cytisus onospermum, Thyrsicanthus rutilans.*

By Robert Buist—twelve plants: *Begonia incarnata, Linum trigynum, Correa multiflora rubra, C. speciosa ventricosa, Tropeolum Lily Schmidt, Luculea gratissima, Epacris Waltonii, Primula sinensis rubro-plena, Camellia, Mrs. Cope, Daphne indica rubra, Veronica Andersonii, Pitcarnea bractea rubra;* 12 *correas, Larpentæa, Magnifica, Linguiforme, ne plus ultra, delicata, Speciosa ventricosa, S. grandis, bicolor, Picta superba, speciosa, Farrissii* and *Turgida.* New Plant—*Aphelandra grandis.*

By John Pollock—twelve plants: *Torrenia Asiatica, Correa grandiflora, Begonia carnea, B. Laperousii, Cuphea platycentra, Epiphyllum truncatum, E. violaceum, Jasminum hirsutum, J. grandiflorum, Gesneria oblongata, G. Leopoldii, Ageratum Mexicanum.* New plants—*Balsamina Hookeri*, and *Begonia Laperosii.*

By Robert Kilvington—a very fine specimen of *Cypripedium insigne.*

Designs.—By Barry Higgins, gr. for D. R. King; by Thomas Meghran, gr. to M. Bouvier.

Baskets.—By J. J. Habermehl, gr. at Eastern Penitentiary, and Mark Hill.

Bouquets.—By John Dick; by J. J. Habermehl, and by James Kent, gr. to B. F. Knorr, not in competition.

Fruit.—By Isaac B. Baxter—*Pears:* Beurre Rance, St. Germain, Broom Park, and Passe Colmar—and *Apples*, the Pittsburg Pippin from J. C. McCammon.

By Mark Bartleson, near Fallston, Harford County, Maine—*Apples*, six varieties: the Bell Flower, Fallen Walder, Pennock, Vanderveer, Hayes, and Roman Stem.

By Robert Buist—*Pears:* a dish of the Doyenné d'Alençon.

Vegetables.—By A. L. Felten—a very large and fine display. By Mark Hill, gr. to M. W. Baldwin—a small choice display. By William Bright, gr. to Joseph Lovering, three bunches of Asparagus.

Officers of the Brooklyn Horticultural Society for 1856.—*President*—John W. Degrauw. *Vice-Presidents*—Henry A. Kent, Wm. C. Langley, Wm. S. Dunham, J. S. T. Stranahan, W. W. Crane. *Treasurer*—A. J. S. Degrauw. *Corresponding Secretary*—Milton Arrow-

SMITH. *Recording Secretary*—M. BRANDEGEE. *Executive Committee*—JNO. MAXWELL, IRA SMITH, H. A. GRAEF. *Finance Committee*—J. H. LESTER, JAMES PARK, JAMES HASLEHURST. *Library Committee*—M. L. SCHAEFFER, J. A. NEXSEN, WALTER PARK. *Premium Committee*—J. E. RAUCH, M. BRANDEGEE, JAMES WEIR, GEORGE GAMGEE, GEORGE HAMLYN. *Committee on Fruits*—JAMES WEIR, J. E. RAUCH, WM. PAYNTER. *Committee on Plants and Flowers*—GEORGE GAMGEE, M. BRANDEGEE, F. LANE. *Committee on Vegetables*—GEORGE HAMLYN, GEORGE INGRAM, MARTIN COLLOPY.

MILWAUKEE, *December* 20, 1855.

EDITOR HORTICULTURIST. DEAR SIR: The Annual Meeting of the *Wisconsin Fruit Grower's Association* was held at Whitewater on the 12th and 13th of December. The attendance was good, and the display of fruits interesting and attractive. The leading object of the Association is to determine, from the experience of its members, the fruits that are best adapted to our climate and soils. In respect to these, our situation is so different from that of horticulturists at the East that, while acknowledging the value of the information derived from them, we find that it will not do to be governed by it entirely. The discussions of our Association are conducted upon the plan of the Northwestern Fruit Growers' Convention, and by these, facts of great importance to the fruit growers of this State are elicited. They will be published about the 1st of February next. We shall be greatly obliged if kindred societies will send us their publications as they are issued. We are small yet—but *we are growing!* The following is the list of officers for 1856.

Yours, very truly,

CHARLES GIFFORD, *Corresponding Secretary.*

OFFICERS OF WISCONSIN FRUIT GROWERS' ASSOCIATION FOR 1856.—*President*—CHARLES GIFFORD, of Milwaukee. *Vice-Presidents*—CYRUS HAWLEY, of Milwaukee; ABEL SLOCUM, of Whitewater; H. T. WOODWARD, of Beloit. *Recording Secretary*—ANDREW CHILD, of Delafield. *Corresponding Secretary*—CHARLES COLBY, of Janesville. *Treasurer*—R. W. PARKER, of Milwaukee. *Executive Committee*—J. C. BRAYTON, of Aztalan; H. J. STARIN, of Whitewater; A. J. HANFORD, of Waukesha.

Calendar of Operations.

FEBRUARY.

VEGETABLE GARDEN.—Among the essentials necessary to maintain high cultivation, a proper system of rotative cropping occupies a prominent place. Physiologists differ in opinion with regard to the principles upon which rotation is founded, but they agree in recommending its utility. There are two theories in vogue, which may be termed the excretory and the exhausting. The former is based on the supposition that, during growth, plants throw off by their roots certain peculiar substances injurious to themselves, but which promote growth in those of a different species. It is well ascertained that plants possess this power, but it is so limited as not to be considered sufficient evidence to account for the beneficial results of rotation. Those who advocate the exhausting theory prove it by the fact that, although all plants are composed of the same primary elements, yet, different species require different proportions of them, each having its own peculiar characteristic formation; so that if the soil is deficient in these particular substances required by a plant, it cannot prosper, notwithstanding that a plant of suitable formation may grow luxuriantly upon it. This points to the possibility of successfully cultivating the same crop on the same ground, by constantly supplying the ingredients extracted by the crop, but we have not as yet attained that perfect knowledge of the exact specific relations between the soil and the plants that grow upon it, to enable us to put the system in practice. Passing over, for the present, many

other advantages attending rotation, it may be remarked that there is a general ignorance of the subject, and a wide field for experiment in ascertaining the kinds of plants best suited to succeed each other, as our present systems are founded more upon convenience than science.

It is very evident, however, that crops cultivated for their seeds and fruit, as peas, corn, beans, tomatoes, egg-plant, &c., should be followed by those grown for their leaves and roots, as cabbages, spinach, beets or carrots; the seeds of plants contain a larger portion of mineral matters than the leaves, consequently there is a greater consumption of the inorganic substances of the soil.

Persevere in turning over the soil, and presenting new surfaces to be acted upon by the atmosphere. Even when the ground is frozen six or eight inches deep, it has been found beneficial to turn it over in *cakes* with crowbars and pickaxes. The most adhesive clayey soils can thus be rendered as friable, and admit of as early working as those of a loamy nature; their latent powers of action are drawn out and rendered available for the purposes of vegetation.

Preparations for cropping should now be commenced by making hotbeds for raising plants and forwarding early crops. Asparagus is a useful early vegetable, and its natural season can readily be anticipated by forcing in frames. Hotbeds are usually made with fresh manure, and much of their efficiency depends upon the preparation of the material. It should first be thrown loosely into a rounded heap; in a few days decomposition will be active and heat generated. It should now be carefully turned over and separated, mixing it thoroughly, and thrown together as before. This turning must be repeated as often as is necessary to prevent its heating to excess, which is indicated by its dry, charred-like appearance in the centre; when in this state it should receive a thorough soaking of water. When violent fermentation declines, it is ready for use. To produce an equal and gradual heat, care must be exercised in building, that it may be of equal firmness; pressure retards decomposition, the fresher the material, therefore, the firmer must it be put together. The making of hotbeds is apparently a simple process, yet few take the trouble to do it properly. Leaves of oak, beech, or chestnut-trees make an excellent hotbed; they decay slowly, and give heat for many months. A very slight warmth is sufficient to force asparagus, a bed of manure two feet deep will answer; cover with four or five inches of soil, and lay the roots close together, and spread two or three inches of dry soil over their tops. All the future care is simply to give a little air in mild weather, and cover up closely on frosty nights with straw mats, or other suitable protection. Air is the best non-conductor; endeavor to secure a stratum of it between the covering and the roof. For this reason, a loose covering of straw or hay, is more effectual in protection than half a dozen mats that lie compactly together.

A crop of radishes may be secured by sowing the seed when the asparagus is planted. Dwarf beans are also frequently raised in frames; they require to be kept dry and warm. Rhubarb and seakale are also suitable for this method of forcing—but they can be much accelerated by simply covering the plants with old boxes or barrels out of doors, and inclosing all with leaves or manure.

Tomatoes, egg-plant, lettuce, capsicums, &c., are most convenient when sown in boxes; they can then be removed, when found desirable, to a different temperature, or for transplanting—the sooner they are removed (technically, pricked out), the more robust and better rooted will they become; this applies to all plants that are transplanted when young.

Fruit-Trees.—Prepare for planting by digging out the holes at the earliest opportunity; let them be deep and ample in every respect. In strong clayey subsoils, trenching with the spade, or loosening with the subsoil plough, are indispensable operations to success. It is cheapest in the end to give all the care and attention to planting that experience and science demand. Turn over the soil, and spread it out in sunny weather to dry and warm; most of the failures in spring planting are attributable to the fact that the atmosphere is considerably warmer than the soil, consequently the branches are excited before the roots are able to supply them with sufficient nourishment for continued growth.

Gooseberries.—In pruning these, thin out the centre of the bushes; fruit is produced both on the young wood, and from spurs on the older branches; cut out closely all shoots removed, and do not shorten the points of the young shoots unless your object is to produce wood.

Currants.—Black, should be treated similarly to the above. Red and white, fruit principally on spurs, therefore shorten all the shoots to encourage these, and keep up an annual renovation by cutting out old barren branches, and supply their place with young shoots from the base. Break, instead of cutting off all suckers from the roots, which will prevent their increase.

GRAPES, HARDY—should now be pruned, where it has been neglected at the proper season in November. The bleeding that follows late pruning may not be permanently injurious, still it cannot benefit the plant, and may as well be avoided. There are few dwellings without a grape arbor or trellis, of tasteful construction frequently, forming a striking contrast to the miserable appearance of the vines trained on them. Luxuriant and fruitful grape-vines are the exception everywhere. Much of this depends upon the neglect of proper pruning, but more frequently it results from the state of the roots. On clayey subsoils, which are cold and wet during winter, the young roots die at the points. They are late in budding, and a sickly shoot is produced which never ripens, and the winter kills it down to the main stem. The grape, above all other plants, requires a dry, or at least, a well-drained soil. A simple expedient in such cases consists in spreading a good dressing of enriched soil on the surface, and bending down the branches so as to cover a part of them six or eight inches in the soil. These will soon produce roots, which may be kept near the surface by annual topdressings. These bent branches should be severed from the main stem after they are well rooted, and, by repeating this operation, healthy vines may always be secured.

GRAPERY.—No subject in fruit culture has called forth so much discussion as the formation of grape borders; volumes have been produced on the subject; the essence of the whole may be comprehended in a single sentence, viz: That ordinary soil, heavily treated with good stable manure, well trenched, aerated, and drained, will produce better crops, and maintain the vines in a healthy, fruitful condition for a longer series of years, than any other composition that has ever been applied for this purpose. The border should be made on the surface, thus saving the expense of excavation, and facilitating the escape of water and drainage. There is plenty of room above, a circumstance that does not seem to have suggested itself to those who spend more in digging out pits, and then getting them laid dry, than all the fruit they will ever produce, will repay.

The border should be made on a porous bottom at least six inches deep, of broken stone, brickbats, charcoal, or any other article that will remain as permanent. It should be surrounded on all sides by a drain; cross-drains should be made every ten feet; at one end of each of these drains an upright shaft should be constructed for the admission of air; similar uprights should be attached to each where it crosses inside the house, so that a perfect system of ventilation may be completely under control of the cultivator. This is the great secret in grape growing; the chemical constitution of the soil is a minor consideration.

FORCING HOUSES.—Peaches, nectarines, figs, cherries, and plums are successfully forced in pots, or tubs, and, when properly managed, are comparatively more productive than trees in the open ground. The plants are more under control, and the roots being confined, favors the production of fruit buds. It is not requisite to have a separate house for each kind of plant. A house devoted to this purpose may be so arranged as to carry a crop of grapes, introducing the vines at a late period. Strawberries could also be produced on shelves near the glass. The temperature of such a house should range from 50° to 85°, or higher, with sunheat and sufficient humidity. Do not overwater the plants; syringe them lightly every day. Use no more fire-heat than is absolutely necessary, and see that a sufficient amount of moisture is produced, to counteract the aridity of the heating apparatus.

GREENHOUSE.—As the days lengthen, and the sun increases in power, the utmost vigilance will be necessary in this department. Most of the winter flowering plants will have commenced growth. Camellias and Azaleas that have bloomed should now be repotted if they require it. Use plenty of porous matters in the soil, especially for the latter. To have these plants in flower early next winter, forcing must be commenced now; encourage an early growth, that the wood may be matured, and flower-buds formed early in summer. Epacrises should be pruned down after flowering; they are easily managed and beautiful flowering plants. The same may be said of Heaths. All New Holland plants—such as boronias, hoveas, correas, polygalas, acacias, beaufortias, chorozemas, daviesias, croweas, dillwynias, diosmas, prostrantheras, pimelias, eutaxias, aphelexes, helichrysums, erioste-mons, and leschenaultias, require the same general treatment. They should be repotted this month, that they may have a good supply of roots before next winter; when growing, they like a moist temperature, frequent syringing, and to be kept rather close than otherwise. All newly potted plants should be sparingly watered, they will require less than before the operation, because the additional soil will longer retain moisture.

Leschenaultia formosa is frequently in collections, but generally sickly. It requires a warm, moist, close atmosphere while growing, and constant attention to picking off flower-buds when young. It needs a light fibry soil, and the drainage must be thorough.

Calceolarias, geraniums, and cinnerarias should have their flower-stems secured to stakes, these supports should be kept as much concealed as possible; they cannot be dispensed with under present modes of culture, but it is a mistake to suppose that their tasteful arrangement is more meritorious than keeping a plant in good health.

Chinese primroses are indispensable winter flowers; select a few of the best for seeding, and pinch out all the flowers for the present, that they may bloom stronger when wanted.

Clerodendrons and fuchsias may now be brought out of their winter quarters, prune closely, and shake away all the soil from their roots, repot in small-sized pots, and water sparingly until they root afresh. Of course, this does not apply to young fuchsias which have been kept growing all winter; these should be repotted as they require it, and trained into a pyramidal form by frequent pinchings of the points; some varieties assume a pretty form without this assistance.

Ixoras, stephanotis, eschynanthus, ardisia, begonias, pleromas, marantas, justicias, centradenias, francisceas, euphorbias, clerodendrons, cyrtoceras, and many others, usually termed hothouse plants, succeed as well, and, in many cases, much better under greenhouse treatment. Even orchids, so much dreaded by amateurs, have been produced in the best perfection without a *stove heat*. They are easier to manage than hard-wooded greenhouse plants. It is worthy of remark that, in proportion as the cultivator becomes conversant with the physiology of vegetation, he becomes more liberal in his views; less particular about keeping up a certain temperature at all hours; not so fastidious about mixing homœopathical portions of soils and manures; in short, he studies Nature more, and systems less.

Achemenes tubers should now be planted; place them near the surface of the soil, and in the warmest part of the house. Gesnera zebrina, than which there is not a more beautiful plant, should be similarly treated. Gloxinia tubers, planted in small-sized pots, barely admitting the roots, and seed sown for plants to flower in autumn. Orange and lemon-trees, that have been kept dry and dormant all winter, may now be repotted; do not give them much water at the root, but wash the leaves and bark, and syringe them often to encourage shoots from the old stems; they are generally unhealthy, leggy, unsightly looking objects, although easily kept in beautiful condition. Pysidium cattleyanum (the guava) is not so plentiful as it should be; it is a beautiful evergreen, fruit-bearing, greenhouse plant.

Very little artificial heat will now be requisite; be cautious in giving air in cold windy weather; rather allow the temperature to rise to 85 or 90 degrees during the heat of the day. Use the syringe freely in the early portion of the day over every part of the house, and on plants not in flower, and have no fear of the sun burning the leaves while the latter are wet. Burning proceeds from bad glass, combined with aridity in the atmosphere. Pick off all dead and decaying leaves, or withered flowers, and arrange the plants in groups, keeping those in flower on the lower shelves, with irregular masses of varied foliaged plants for a background. Nothing can be more monotonous than an even surface of plants, all seen at the first glance. It requires as much taste to arrange a greenhouse as to plant a lawn.

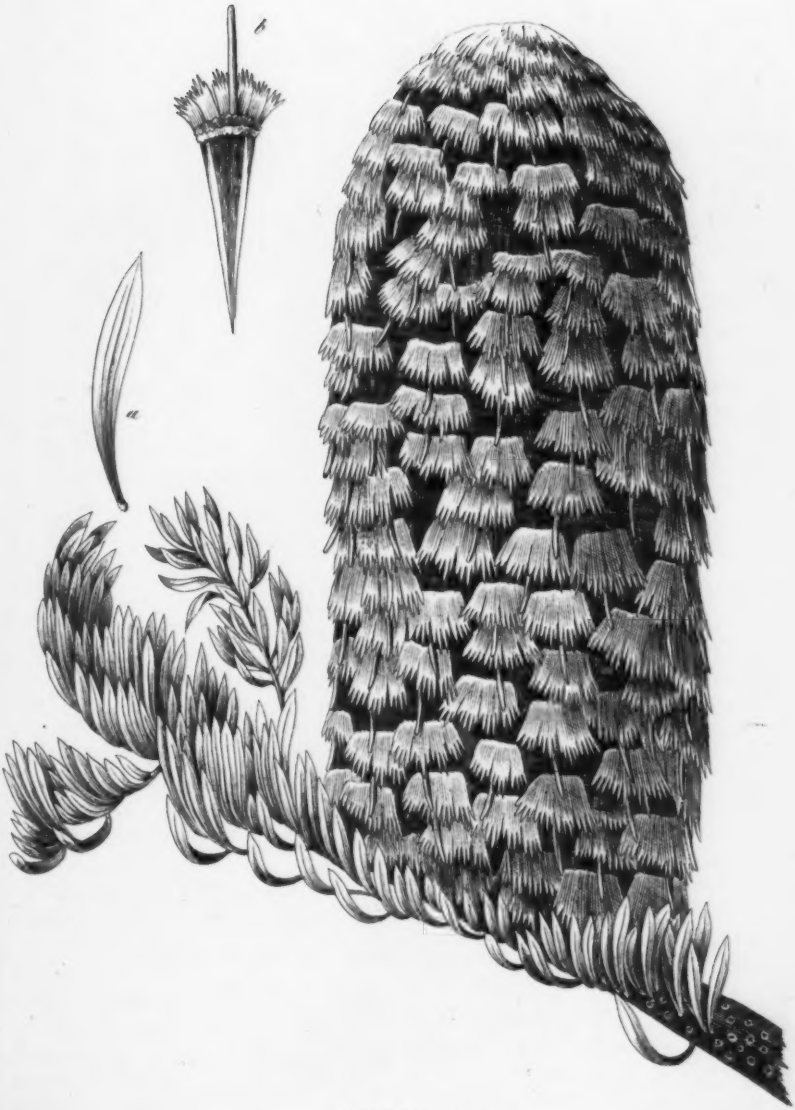
Flower Garden.—An estimate should be made of the quantity of plants likely to be needed for the flower-beds, and all deficiencies met by propagation. Of late years, the prevailing style of decorating flower-gardens has been in grouping beds of different colors, each bed being filled with one kind of plant. In small geometrical gardens this looks very well, if skilfully done; the plants best adapted to this style are those of compact habit, and free flowering properties; permanence of flower is a further requisite, colors brilliant, and the plant easily propagated. Geraniums, lantanas, verbenas, vincas, galardias, petunias, salvias, nierembergias, and heliotropes, are the most popular and suitable. The principal stock should be secured in the fall, at which period cuttings are readily procured.

Plants propagated now will grow as freely as those kept over winter; the latter, however, will give flowers earlier. There are various expedients for striking cuttings. A good one is to procure a box with sides a foot in depth, in which is placed a few inches of sand or light earth; set it on the greenhouse shelf above the hottest part of the flue or waterpipes, the bottom of the box should be thickly perforated with holes, to admit heat to the sand; the box should be covered with large loose squares of glass; its ample sides obviate the necessity of shading.

Roses; to have *perpetual*, recourse must be had to deep culture. Dig the soil to a depth of eighteen inches, and throw aside the subsoil, supply its place with good surface soil and manure; to have continued bloom, the plants must be kept in continued growth, and that can only be guaranteed by allowing the roots a deep and suitable medium, to escape from the burning sun and severe droughts of summer. A score of plants thus cared for, will give more flowers than a hundred under ordinary treatment.

William Saunders.

THE KEIM APPLE.



ABIES NOBILIS.